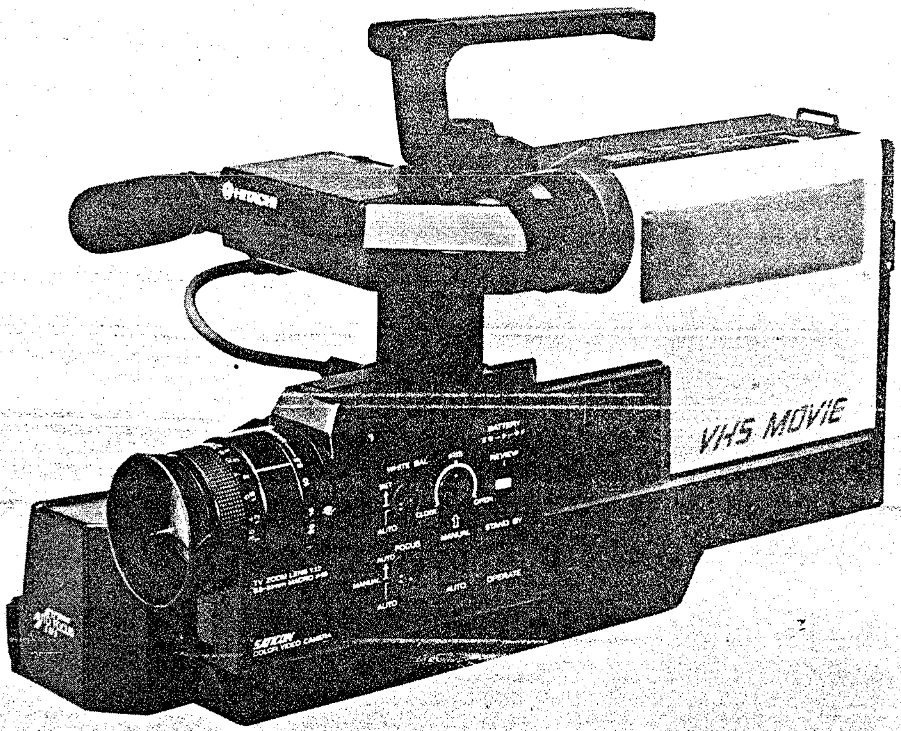
HITACHI
SERVICE MANUAL

TK | **NO.2356E**

VM-200E

Technical Data



VHS

THIS VIDEO DECK IS A VHS TYPE VIDEO RECORDER.
FOR PROPER OPERATION, ONLY THE VHS TYPE CASSETTE MUST BE USED.

SAFETY PRECAUTIONS

The following precautions should be observed when servicing.

1. Since many parts in the unit have special safety-related characteristics, always use genuine Hitachi replacement parts. Especially critical parts in the power circuit block should not be replaced with other makers!
   Critical parts are marked with ⚠ in the schematic diagram, and circuit board diagram.
2. Before returning a repaired unit to the customer, the service technician must thoroughly test the unit to ascertain that it is completely safe to operate without danger of electrical shock.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

VIDEO CAMERA/RECORDER

Oct. 1985 **TOKAI WORKS**

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1. No EE-video monitor 83
2. No record video 85
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4. No play video 87
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6. No power to camera 90
7. Does not operate auto focus/auto white-balance/ power zoom/auto iris 91
8. Video level to high/low 93
9. No picture 95
10. Does not operate auto focus 98
11. No color 101
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14. No EVF raster 107
15. No EE-sound 109
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19. No power 115
20. Does not detect battery over discharge 117
21. Does not input key switches 119
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25. Does not display mode 127
26. Stripes horizontally appear on screen 129
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30. Picture swings vertically or noise picture and clean picture alternately appear on screen in playback mode 135
31. Many noise appear on screen in playback mode . 137
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SPECIFICATIONS

■ General

Power requirements	12V DC
Power consumption	9.5 watts (When AUTO/MANUAL FOCUS Switch is "MANUAL".)
Dimensions	164(W) x 189(H) x 354(H) mm
Weight	2.5 kg

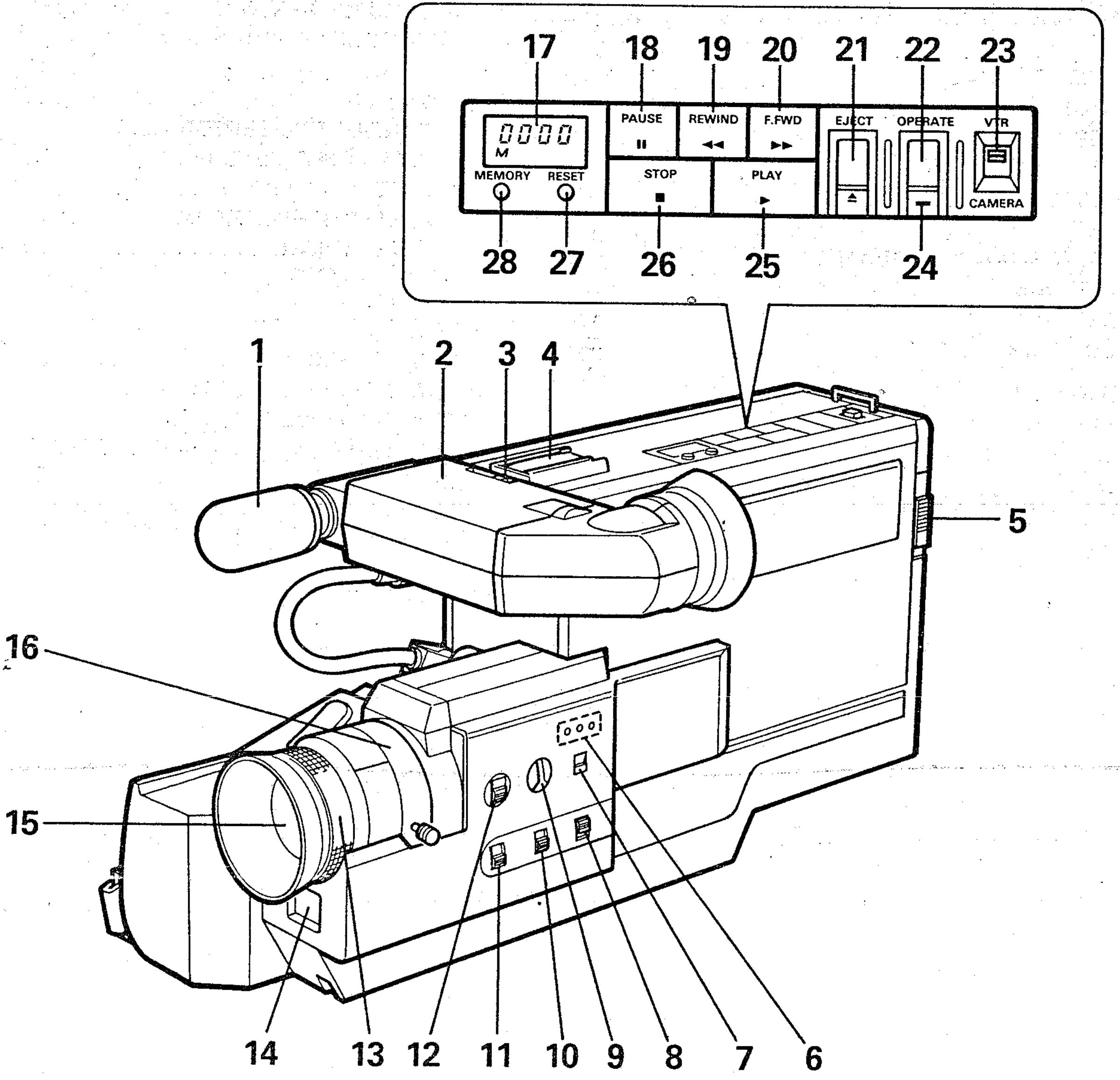
■ Video Recorder Section

Format	VHS
Record/playback system	Four video record/playback heads
Video signal	PAL colour & CCIR monochrome signals 625 lines
Tape speed	23.39 mm/sec.
Video input	1.0 Vp-p, 75 ohm (with Audio/Video Input Adaptor)
Video output	1.0 Vp-p, 75 ohm
Mic input	−68 dBs, more than 1K ohm
Audio input	−8 dBs, more than 50K ohms (with Audio/Video Adaptor)
Audio output	−8 dBs, less than 1K ohm
Earphone output	−26 dBs, (8 ohms terminal)
Fast forward/rewind time	Less than 8 minutes with E-180 cassette

■ Camera Section

Scanning	625 lines/50 fields/25 frames
Required minumum illumination	10 lux
Camera tube	1/2" striped Saticon
Lens diameter	46 mm

IDENTIFICATION AND OPERATION OF CONTROLS


17
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0000
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MEMORY
RESET
PAUSE
REWIND
F.FWD
EJECT
OPERATE
VTR
STOP
PLAY
CAMERA
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6

Fig. 1-1

1. **Microphone**
   Sensitive to sounds coming from the direction in which the camera is pointed. Detachable with fastening ring.

2. **Electronic Viewfinder (EVF)**
   Displays what the Camera/Recorder lens sees. The electronic viewfinder also functions as a convenient black-and-white monitor during playback of recorded material.

3. **LOCK/RELEASE Lever**
   Slide the Lever to "RELEASE" position. Used to adjust the eyepiece position of Electronic Viewfinder (EVF).

4. **Accessory Shoe**
   Used to attach the Carrying Handle (Optional accessory) or Camera Light.

5. **BATT EJECT Lever**
   Releases the Battery or the AC Adaptor/Charger attached to the Camera/Recorder.

6. **BATTERY Indicators**
   These three Lights give the user a general idea of the Battery conditions. A fully charged Battery causes all three Lights to light.

7. **REVIEW Button**
   Used to review the last few seconds of the recorded segment in the record/pause mode.

8. **STAND BY Switch**
   This is a Switch to minimize the Battery power consumption. In "STAND BY" position, the Electronic Viewfinder is disabled.

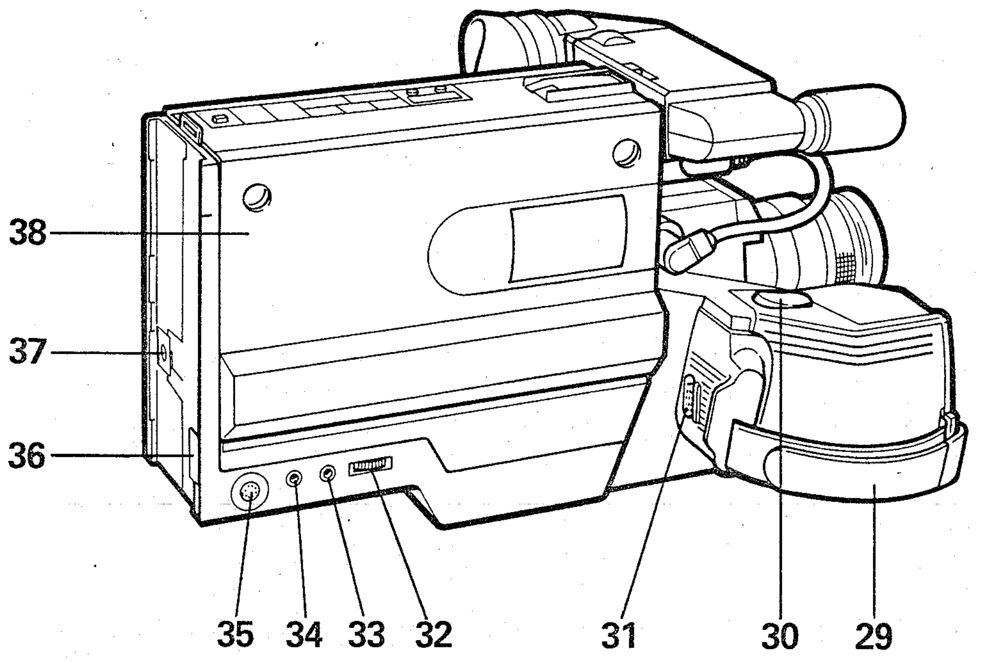


Fig. 1-2

9. **Iris Control**
Increase the light incident to lens in the back light by turning this knob.

10. **IRIS AUTO/MANUAL select switch**
Set this Switch to the "AUTO" position generally. The iris is controlled automatically.
Set the Switch to "MANUAL" to change the iris manually by turning the Iris Control.

11. **AUTO/MANUAL FOCUS Switch**
Set this Switch to the "AUTO" position for automatic focusing, and to the "MANUAL" position for focusing with the Focus Ring. When the Switch is held in the upper position, automatic focusing is performed until the Switch is released.

12. **WHITE BALANCE Switch**
When this Switch is in the "AUTO" position, the colour balance is set automatically. When this Switch is in the "SET" position, the colour balance is set manually.

13. **Focus Ring**
Do not attempt to manually turn the Focus Ring when the Camera/Recorder is in the AUTO FOCUS mode.

14. **Auto Focus Window**
To automatically focus the camera lens, this window receives infrared light which is transmitted from the Camera/Recorder lens and is reflected back from the object.

15. **Lens**
F1.2 (8.5 ~ 51 mm) 6:1 power zoom lens features with auto focus and auto iris functions.

16. **Zoom Ring (Manual Zooming)**
The picture size can be magnified 6 times with the use of the zoom feature. Just rotate the Zoom Ring for a close up (T) or wide angle (W) picture. Macro close-up, as close as 1 cm from object, is possible.

17. **Tape Counter**
Indicates tape position. Used to locate a particular point on the tape.

18. **PAUSE Button**
Press this Button during playback to display a still picture on the viewfinder.

19. **REWIND Button**
Press this Button during Stop, Pause or Fast forward mode, and fast-rewinding starts. Press the Button during playback of tape, and the tape is played back in the rewind direction approximately 3 times faster than the normal speed to confirm the recorded contents.

20. **F.FWD Button**
Press this Button during Stop, Pause or Rewind mode, and fast-forwarding starts.
Press the Button during playback of tape, and the tape is played back in the forward direction approximately 3 times faster than the normal speed to confirm the recorded content.

21. **EJECT Button**
Press to insert or remove the cassette.

22. **OPERATE Button**
Press this Button to turn Camera/Recorder on. Press again to turn Camera/Recorder off.
OPERATE Light illuminates when this Button is pressed and Camera/Recorder is on.

23. **VTR/CAMERA Select Switch**
This Switch changes the Camera/Recorder to the record mode or to the playback mode. The Switch must be in **"CAMERA"** position for recording.

24. **OPERATE Light and Dew Indicator Light**
Flashing of the Light on the OPERATE Button indicates dew condensation on Camera/Recorder mechanism. While this Light is flashing, the unit will not operate. Then leave the power on. When the Light stops flashing, the unit can be operated.

25. **PLAY Button**
Used for playback.

26. **STOP Button**
The STOP Button is used to stop playback, rewind, and fast forward operations. The STOP Button has no effect during record operation.

27. **RESET Button**
Press to reset the Tape Counter to "0000".

28. **MEMORY Button**
If this Button is pressed, "M" appears on the Tape Counter Display and it memorizes the tape position of "0000".

29. **Hand Strap**
Adjust to best fit to your hand.

30. **Power Zoom Switch**
This switch performs zooming electrically.
"W": Picture becomes wider gradually.
"T": Picture becomes telescopic gradually.

31. **Record Start/Stop Switch**
This Switch is used to control the Camera/Recorder. When this switch is pressed with the Camera/Recorder set to the recording mode, the tape runs to start recording.
When this Button is pressed again, the tape stops and the Camera/Recorder enters the record/pause (stand-by) mode.

32. **TRACKING Control**
Used when playing a tape recorded on another VTR. Adjust for best picture. At all other times leave it in the center position, which can be found as a small detent in the movement of the knob.

33. **REC/PAUSE Jack**
Recording and pausing may be remotely controlled by an optional Camera Remote Control Unit.

34. **EARPHONE Jack**
Sound being recorded by the microphone or played back may be monitored by optional earphone to this jack.

35. **A/V OUT Jack**
Connect the optional Audio/Video Output Cable to this jack and to the audio and video inputs of your TV/monitor receiver. You may also connect the optional RF Converter Unit to this jack and your TV receiver.

36. **Power Terminal Protection Cover**
This Cover should be in the uppermost position covering the terminal at all times.

37. **DC IN-12V Jack**
Used for the optional Car Battery Cord which connects to the cigarette lighter socket in your car.

38. **Cassette Holder**
Press EJECT Button to open the Cassette Holder. Be aware of the Cassette direction when inserting.
NOTE: Power source must be connected to open the Cassette Holder.

CIRCUIT BOARD LOCATION

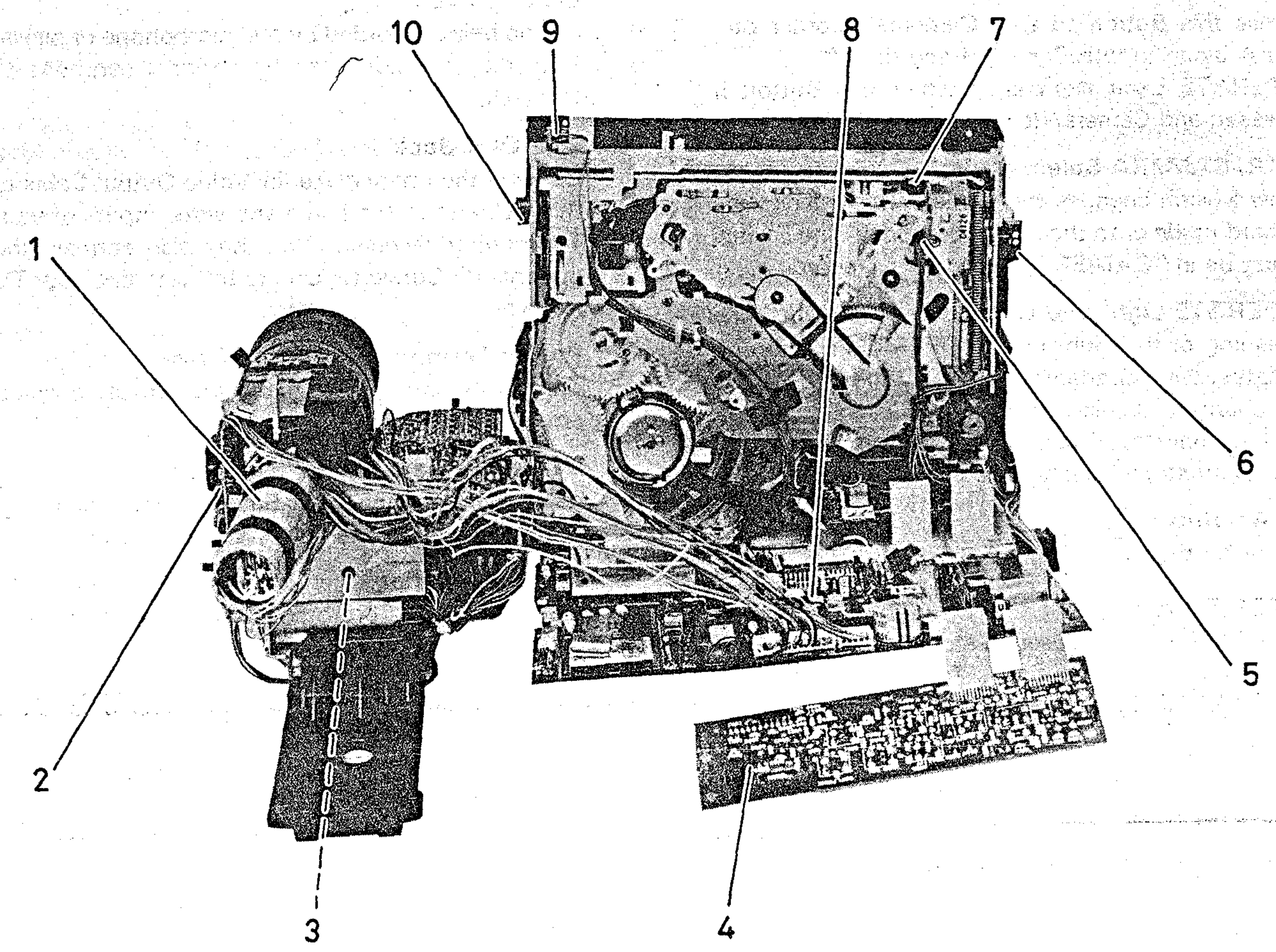


Fig. 1-3

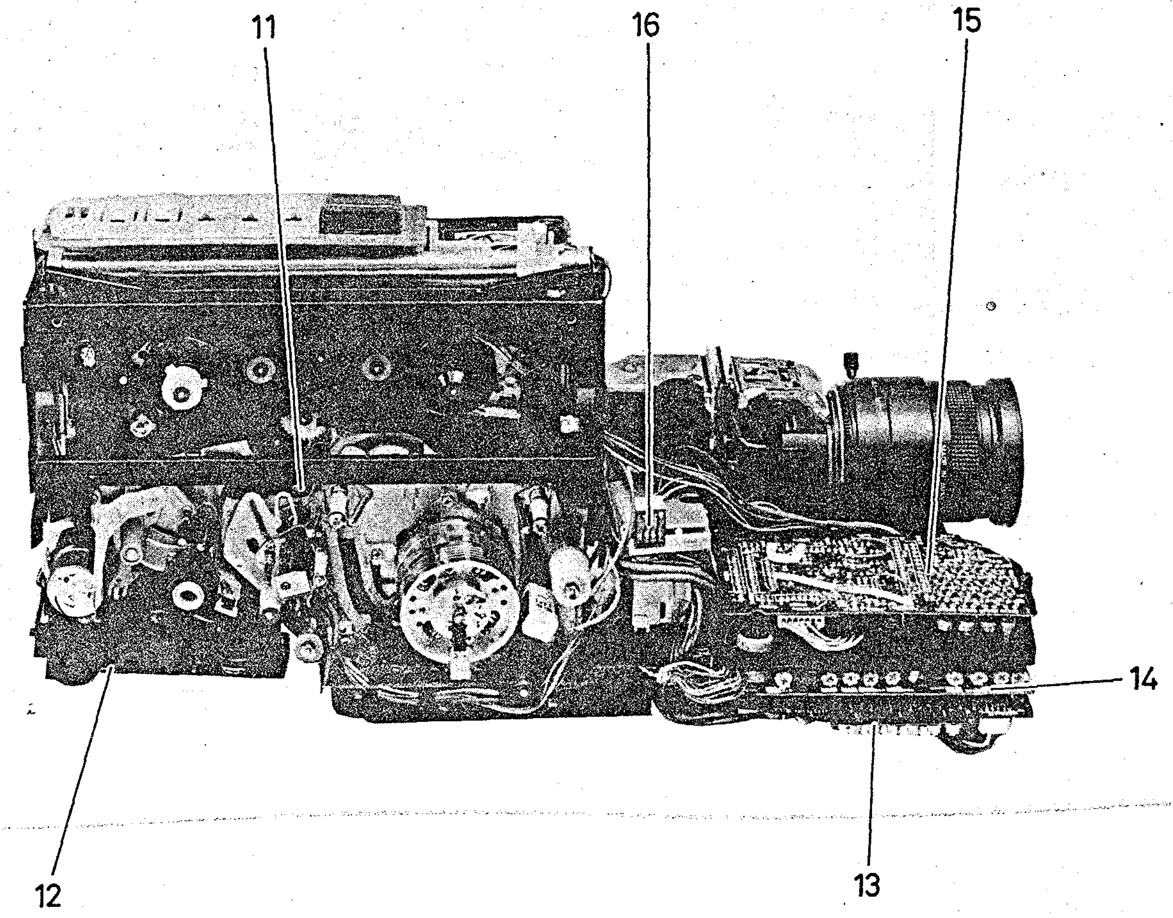


Fig. 1-4

1. Saticon
2. Camera Switch Circuit Board
3. Preamp Circuit Board
4. Function Switch Circuit
5. Reel Sensor
6. Take-up End Sensor
7. Cassette Holder Switch
8. Main Circuit Board
9. Safety Tab Switch
10. Supply End Sensor

11. End Lamp
12. Audio Circuit Board
13. Process Circuit Board
14. Deflection Circuit Board
15. Regulator Circuit Board
16. 8V Regulator Circuit Board

DISASSEMBLY

CASE

Electronic Viewfinder (EVF) Removal (Fig. 2-1)

1. Disconnect EVF connector.
2. Release the EVF lock and remove the EVF in the direction of the arrow.

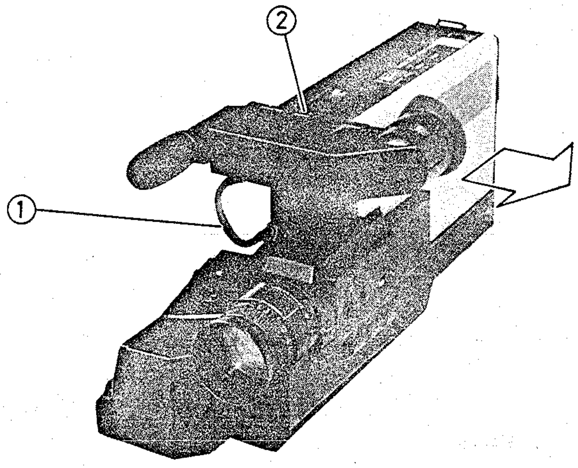


Fig. 2-1 Electronic Viewfinder (EVF) Removal

Electronic Viewfinder (EVF) Shoe Removal (Fig. 2-2)

1. Remove the EVF. (See Fig. 2-1)
2. Remove one (1) screw holding the EVF shoe.
3. Remove the EVF shoe in the direction of the arrow.

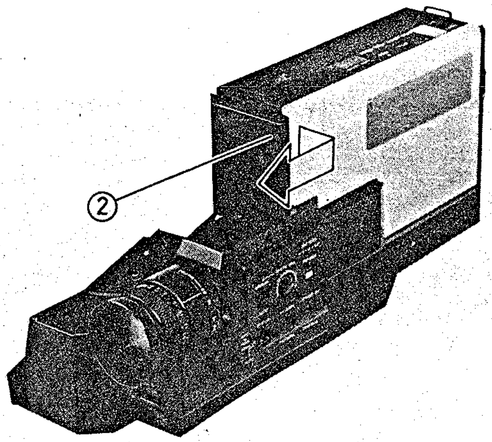


Fig. 2-2 Electronic Viewfinder (EVF) Shoe Removal

Accessory Shoe Removal (Fig. 2-3)

1. Remove two (2) screws holding the accessory shoe.

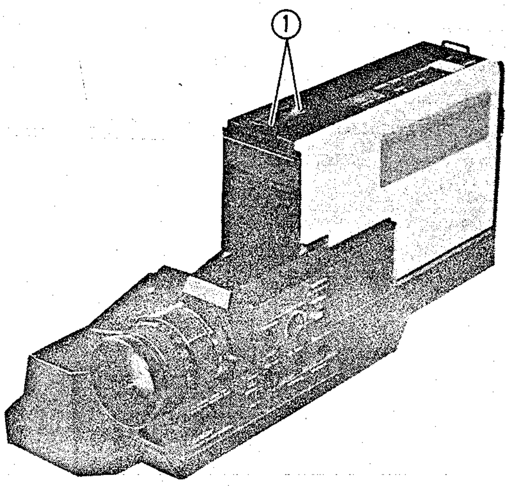


Fig. 2-3 Accessory Shoe Removal

Cassette Lid Removal (Fig. 2-4)

1. Remove two (2) screws holding the cassette lid.
2. Remove the cassette lid in the direction of the arrow.

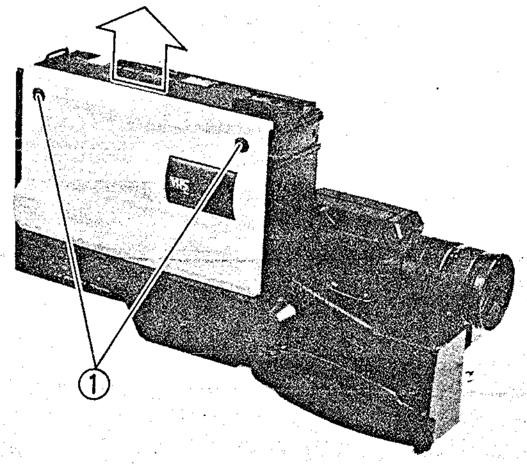


Fig. 2-4 Cassette Lid Removal

Left Case Removal (Fig. 2-5, 2-6)

1. Remove the EVF. (See Fig. 2-1)
2. Remove the EVF shoe. (See Fig. 2-2)
3. Remove the accessory shoe. (See Fig. 2-3)
4. Remove two (2) screws holding the top cover. (See Fig. 2-5)
5. Remove the top cover.
6. Remove one (1) screw holding the left case.
7. Remove five (5) screws holding the left case. (See Fig. 2-6)
8. Remove the left case in the direction of the arrow.

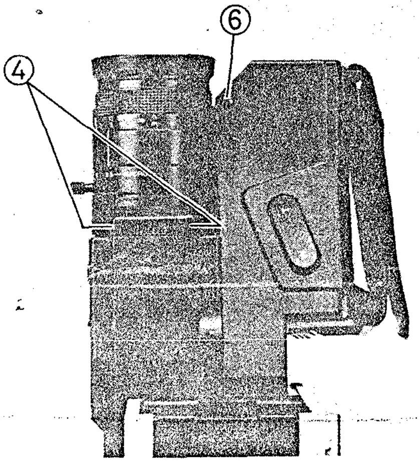


Fig. 2-5 Left Case Removal

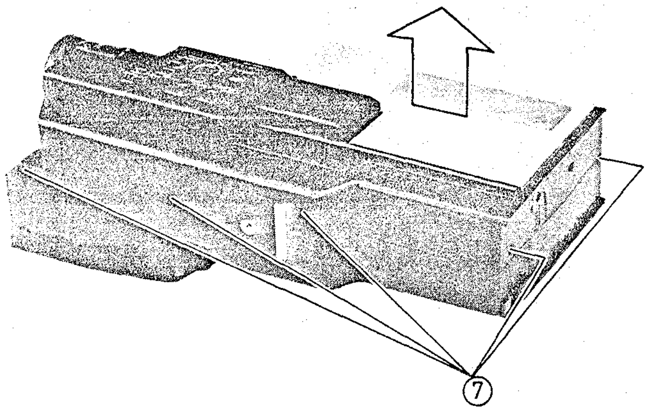


Fig. 2-6 Left Case Removal

Right Case Removal (Figs. 2-7, 2-8)

1. Remove the EVF. (See Fig. 2-1)
2. Remove the EVF shoe. (See Fig. 2-2)
3. Remove the accessory shoe. (See Fig. 2-3)
4. Remove the cassette lid. (See Fig. 2-4)
5. Remove the left case. (See Figs. 2-5, 2-6)
6. Disconnect connector CN909. (See Fig. 2-7)
7. Disconnect three (3) connectors (CN506, CN520, CN621). (See Fig. 2-8)
8. Remove four (4) screws holding the right case.
9. Release one (1) tab.
10. Remove the right case in the direction of the arrow.

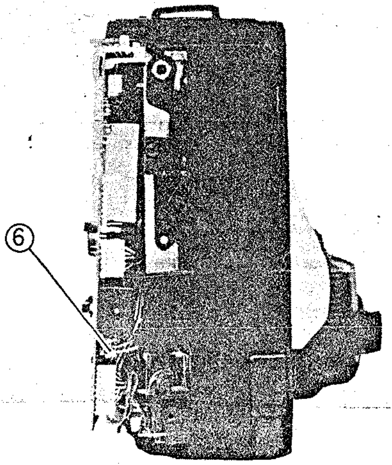


Fig. 2-7 Right Case Removal

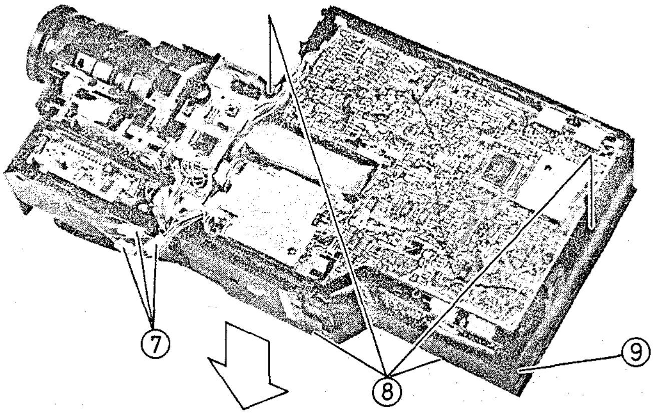


Fig. 2-8 Right Case Removal

Cassette Loading Mechanism — Top View

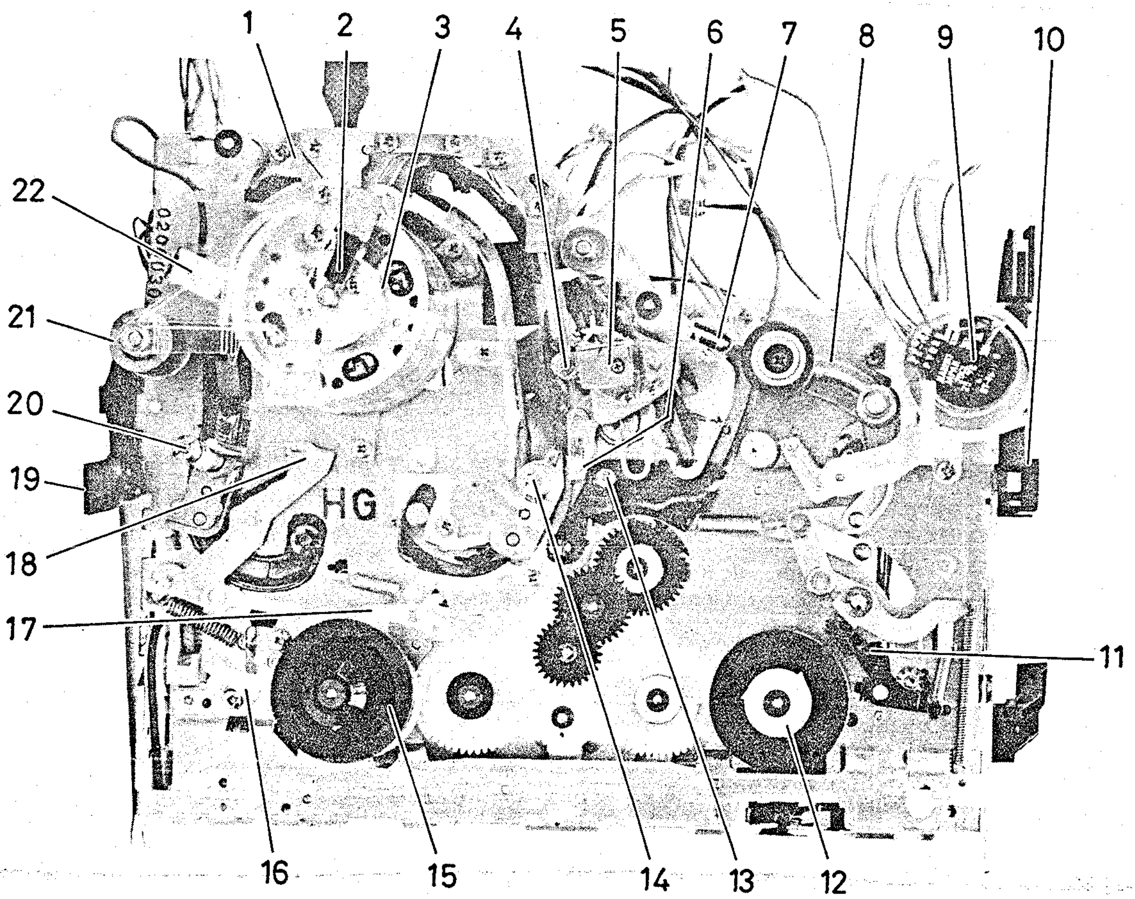


Fig. 2-9 Cassette Loading Mechanism — Top View

1. Catcher Block	12. Take-up Reel Disk
2. Cylinder Motor Brush	13. End Lamp
3. Video Head (Upper cylinder)	14. Take-up Guide Roller
4. Guide Post	15. Supply Reel Disk
5. Audio/Control (A/C) Head	16. Tension Band
6. Guide Arm Assembly	17. Supply Sub Brake
7. Dew Sensor	18. Tension Arm
8. Pressure Roller Arm	19. Supply End Sensor
9. Capstan Motor	20. Supply Guide Roller
10. Take-up End Sensor	21. Impedance Roller
11. Take-up Sub Brake	22. Full Earse (FE) Head

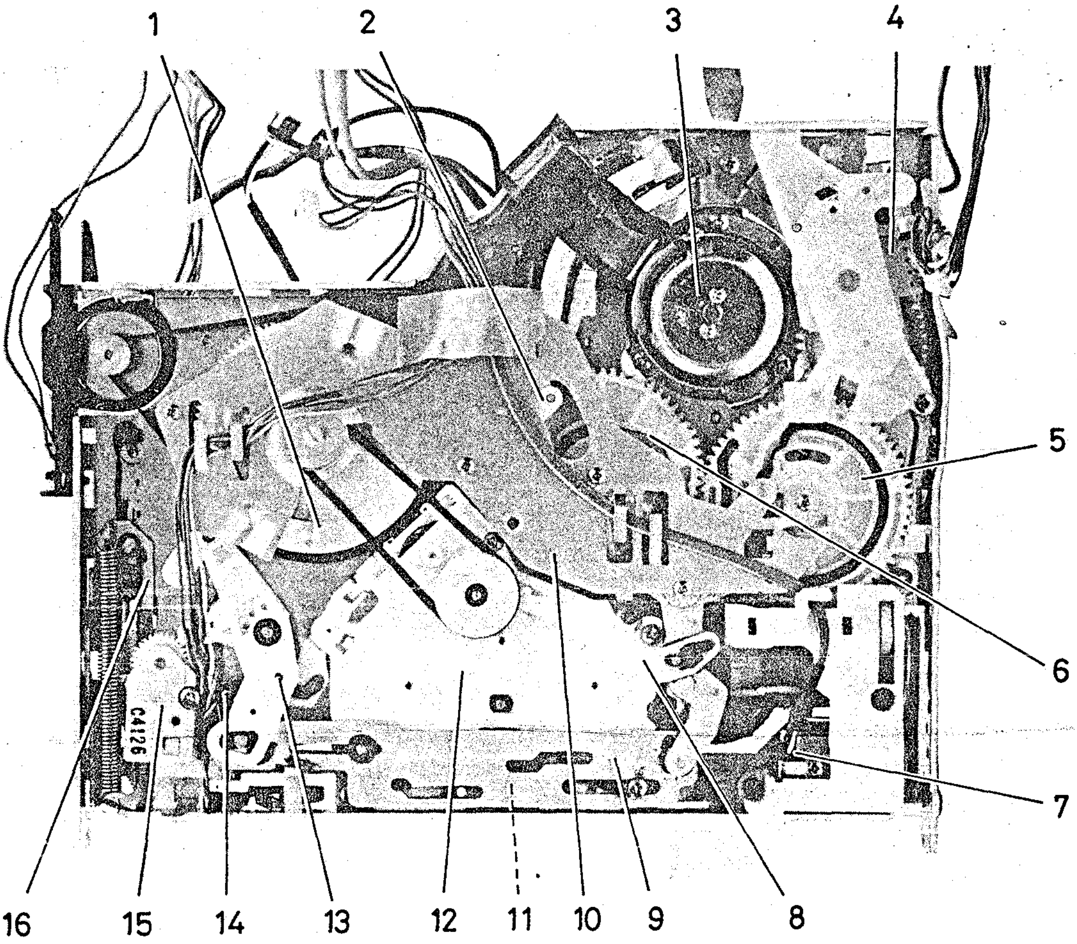


Fig. 2-10 Cassette Loading Mechanism – Bottom View

1. Capstan Flywheel
2. A/C Head Control Arm
3. Lower Cylinder
   (Cylinder Motor)
4. Mechanism State Switch
5. Supply Loading Cam Gear
6. Take-up Loading Cam Gear
7. Loading Motor
8. Cam Gear Arm
9. Slider
10. Cam Gear Plate
11. Main Brake Arm
12. Reel Gear Block
13. PB/REC Drive Arm
14. Reel Sensor
15. Damper
16. Up Slider

CIRCUIT BOARD

Remove the right case and left case as previously given.

Function Switch Circuit Board Removal
(Figs. 2-11, 2-12, 2-13)

1. Release seventeen (17) wires from the wire holder. (See Fig. 2-11)
2. Release two (2) tabs holding the main circuit board.
3. Pull out the function switch circuit board in the direction of the arrow. (See Fig. 2-12)
4. Open the main circuit board and function switch circuit board in the direction of the arrow.
5. Disconnect two (2) flat cables (CN005, CN006). (See Fig. 2-13)

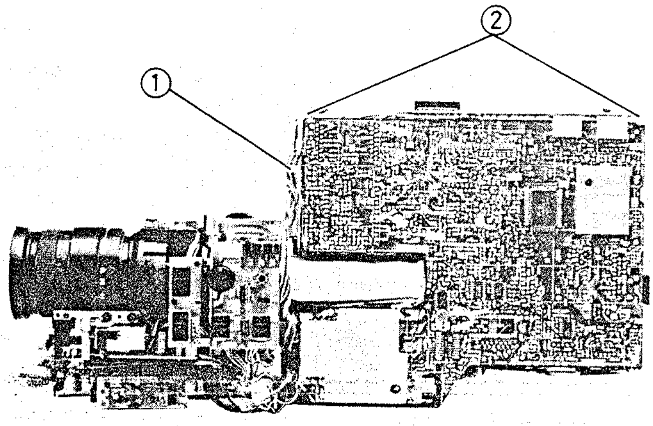


Fig. 2-11 **Function Switch Circuit Board Removal**

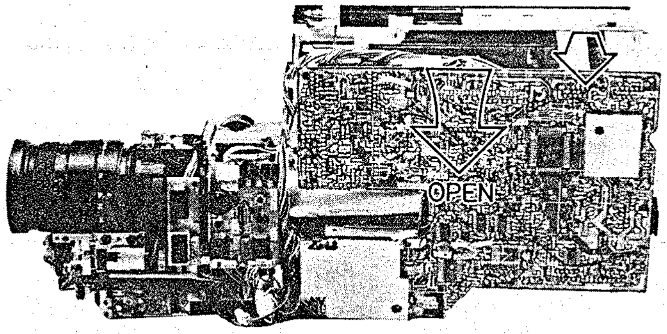


Fig. 2-12 **Function Switch Circuit Board Removal**

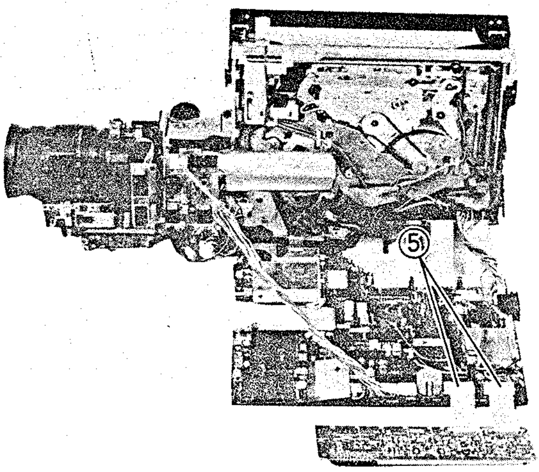


Fig. 2-13 **Function Switch Circuit Board Removal**

Main Circuit Board Removal (Figs. 2-14, 2-15, 2-16)

1. Remove the function switch circuit board. (See Figs. 2-11, 2-12, 2-13)
2. Disconnect five (5) connectors (CN1501, CN1602, CN611, CN612, CN903). (See Fig. 2-14)
3. Remove the shield cover of luma/chroma section.
4. Disconnect four (4) flat cables (CN408, CN107, CN613, CN214). (See Fig. 2-15)
5. Unsolder one (1) lead.
6. Release two (2) tabs of the board holder. (See Fig. 2-16)
7. Remove the main circuit board from the board holders.

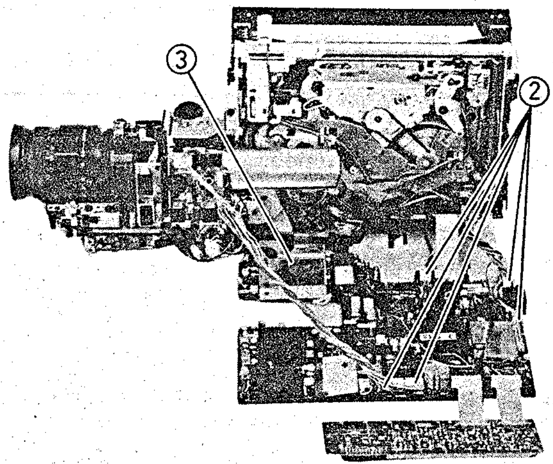


Fig. 2-14 **Main Circuit Board Removal**

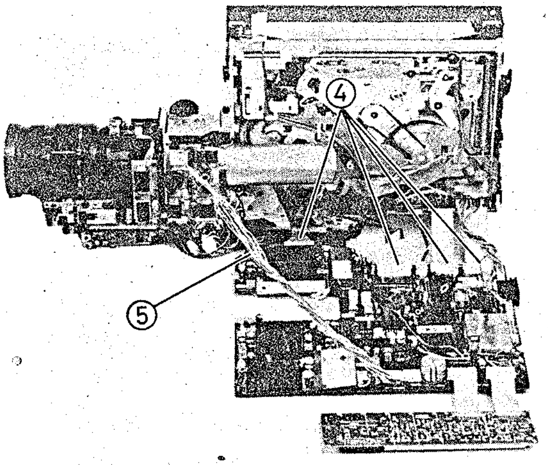


Fig. 2-15 Main Circuit Board Removal

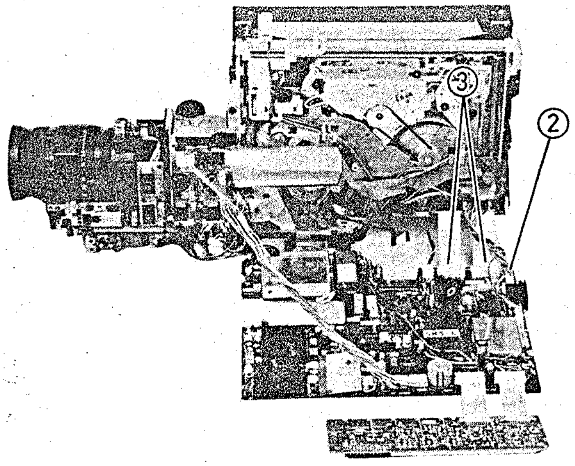


Fig. 2-17 Audio Circuit Board Removal

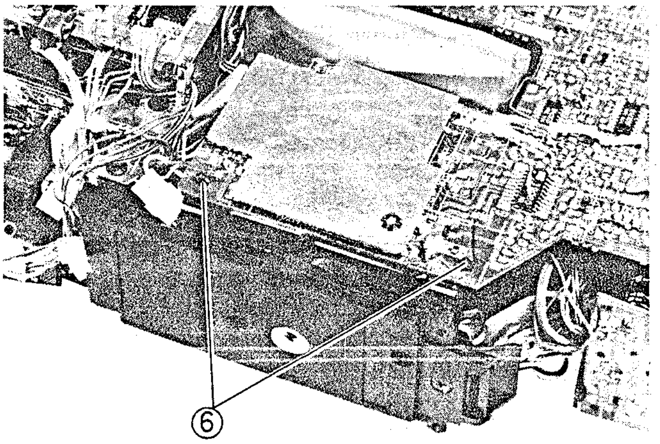


Fig. 2-16 Main Circuit Board Removal

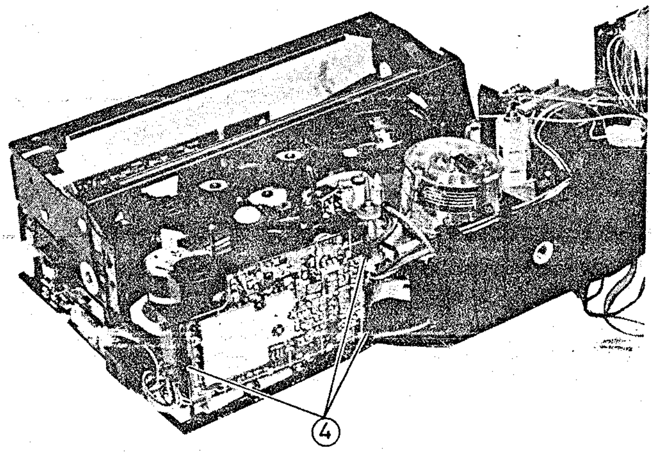


Fig. 2-18 Audio Circuit Board Removal

Audio Circuit Board Removal (Figs. 2-17, 2-18, 2-19)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Disconnect connector CN903. (See Fig. 2-17)
3. Disconnect two (2) flat cables (CN408, CN107).
4. Release three (3) tabs and open the audio circuit board. (See Fig. 2-18)
5. Disconnect twelve (12) connectors (CN415, CN404, CN416, CN125, CN124, CN123, CN122, CN121, CN120, CN119, CN118, CN117). (See Fig. 2-19)
6. Release one (1) tab and remove the A/V OUT connector in the direction of the arrow.

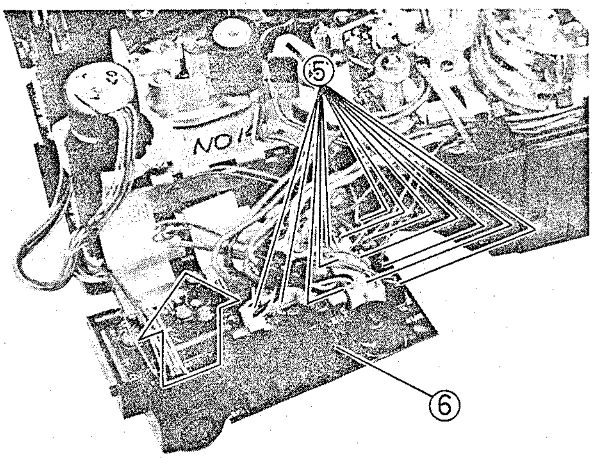


Fig. 2-19 Audio Circuit Board Removal

Process Circuit Board Removal (Figs. 2-20, 2-21)

1. Disconnect six (6) connectors (CN1107, CN018, CN1315, CN1509, CN1619, CN1526). (See Fig. 2-20)
2. Release two (2) tabs and open the process circuit board in the direction of the arrow.

   Note: When the description "Open the process circuit board" is given in the disassembly hereafter, the six (6) connectors in item 1 need not to be disconnected.
3. Remove the process circuit board from board holders. (See Fig. 2-21)

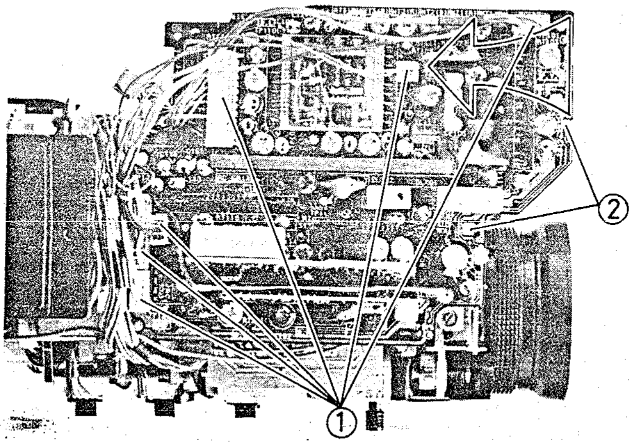


Fig. 2-20 Process Circuit Board Removal

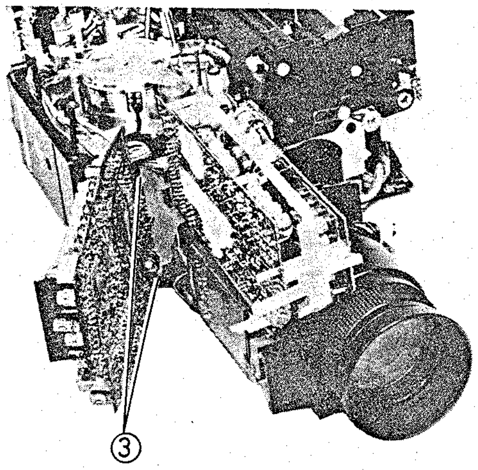


Fig. 2-21 Process Circuit Board Removal

Deflection Circuit Board Removal
(Figs. 2-22, 2-23, 2-24, 2-25, 2-26, 2-27)

1. Disconnect connector CN1501. (See Fig. 2-22)
2. Disconnect connector CN1509. (See Fig. 2-23)
3. Disconnect connector CN1525. (See Fig. 2-24)
4. Remove one (1) screw holding the heat sink of the 8V regulator circuit board and remove the heat sink.
5. Remove one (1) rivet and release one (1) tab holding the regulator circuit board.
6. Open the regulator circuit board in the direction of the arrow.

   Note: When the description "Open the regulator circuit board" is given in the disassembly hereafter, the screw in item 4 need not to be removed.
7. Disconnect three (3) connectors (CN1311, CN1312, CN1313) on the deflection circuit board. (See Fig. 2-25)
8. Disconnect connector CN1310 on the regulator circuit board.
9. Disconnect two (2) connectors (CN1315, CN1316). (See Fig. 2-26)
10. Open the process circuit board. (See Fig. 2-20)
11. Release two (2) tabs and remove the deflection circuit board. (See Fig. 2-27)

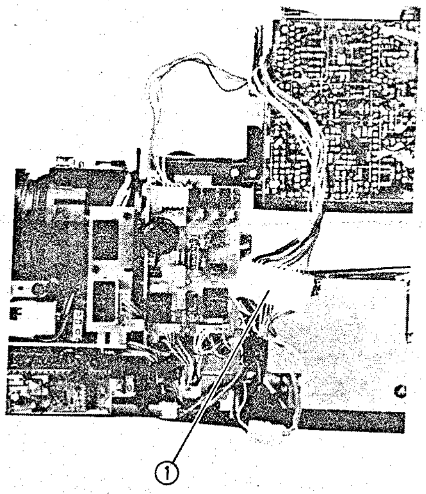


Fig. 2-22 Deflection Circuit Board Removal

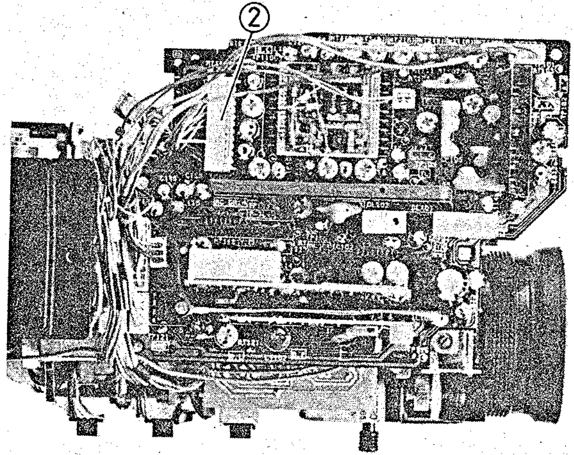


Fig. 2-23 Deflection Circuit Board Removal

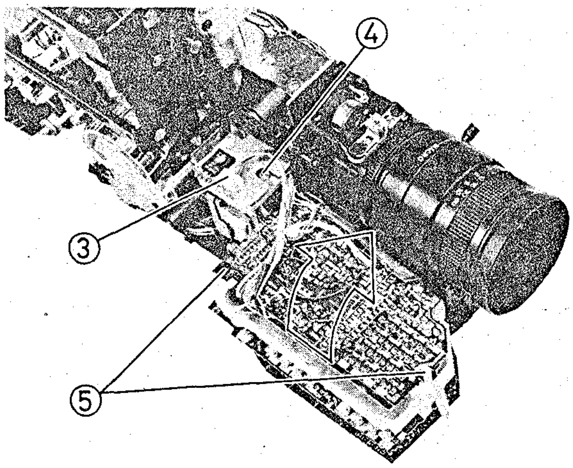


Fig. 2-24 Deflection Circuit Board Removal

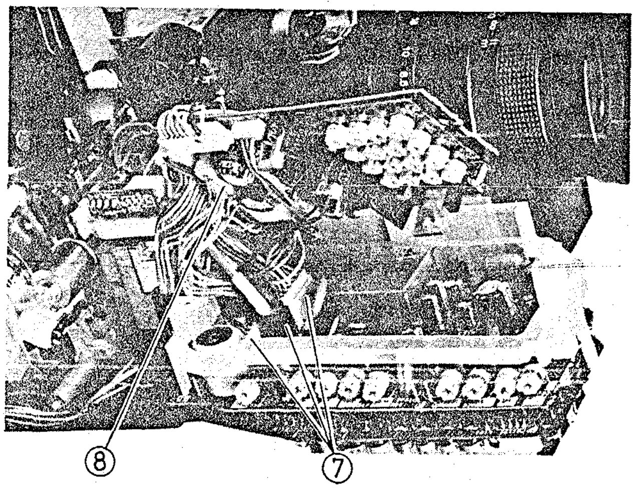


Fig. 2-25 Deflection Circuit Board Removal

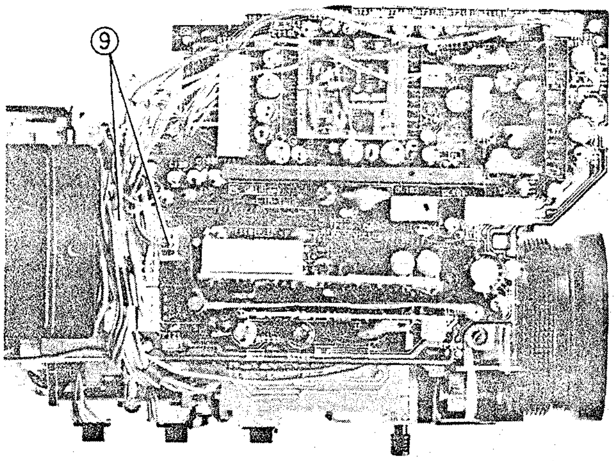


Fig. 2-26 Deflection Circuit Board Removal

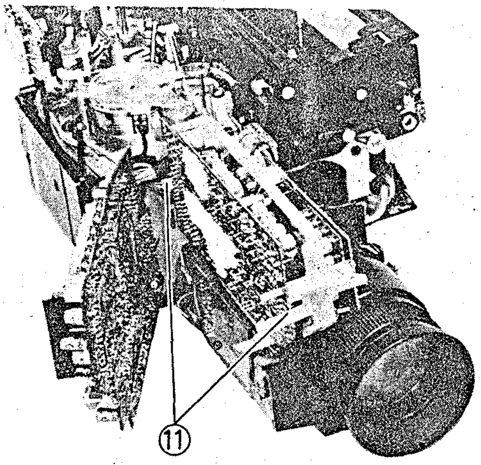


Fig. 2-27 Deflection Circuit Board Removal

Regulator Circuit Board Removal (Fig. 2-28)

1. Remove the deflection circuit board. (See Figs. 2-22, 2-23, 2-24, 2-25, 2-26, 2-27)
2. Disconnect four (4) connectors (CN024, CN1505, CN1508, CN1607) on the regulator circuit board. (See Fig. 2-28)

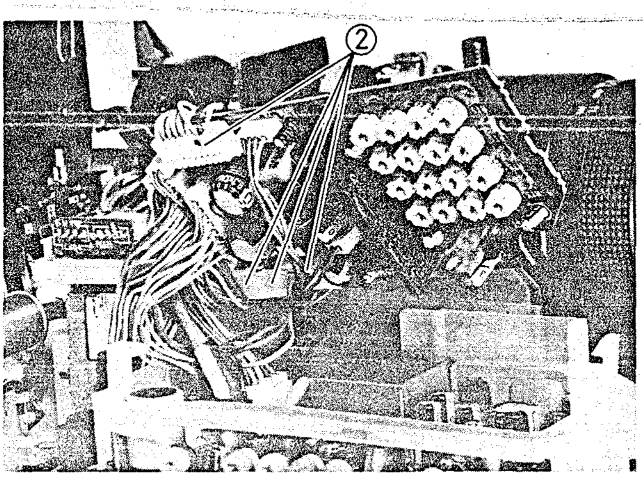


Fig. 2-28 Regulator Circuit Board Removal

Camera Switch Circuit Board Removal
(Figs. 2-29, 2-30, 2-31)

1. Open the regulator circuit board. (See Fig. 2-24)
2. Disconnect connector CN1607. (See Fig. 2-29)
3. Disconnect connector CN1619. (See Fig. 2-30)
4. Disconnect connector CN602. (See Fig. 2-31)
5. Remove one (1) screw holding the camera switch circuit board.

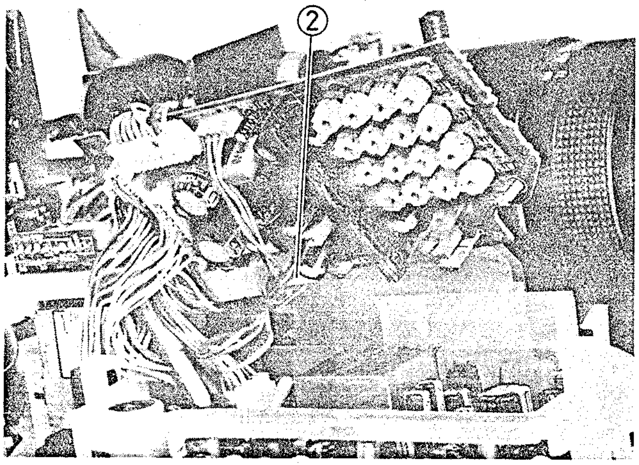


Fig. 2-29 Camera Switch Circuit Board Removal

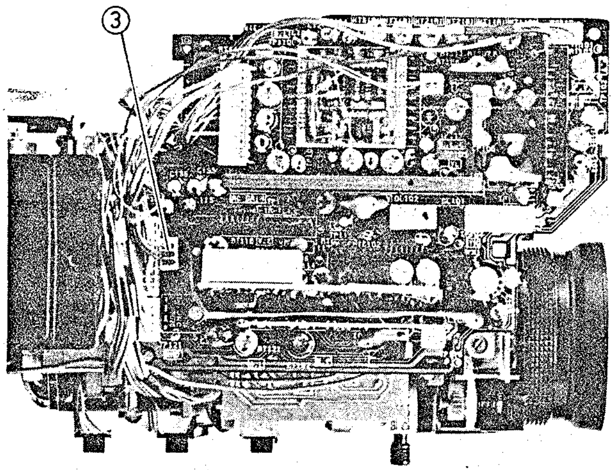


Fig. 2-30 Camera Switch Circuit Board Removal

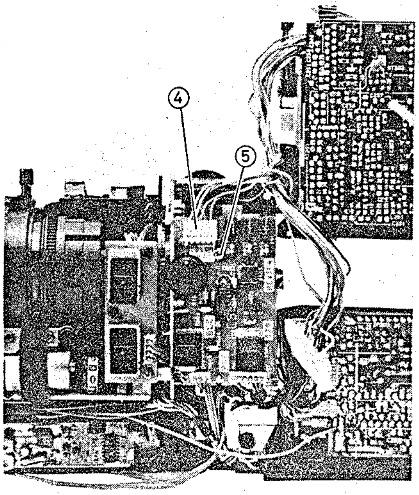


Fig. 2-31 Camera Switch Circuit Board Removal

8V Regulator Circuit Board Removal (Fig. 2-32)

1. Disconnect connector CN1525. (See Fig. 2-32)
2. Remove one (1) screw holding the 8V regulator circuit board.

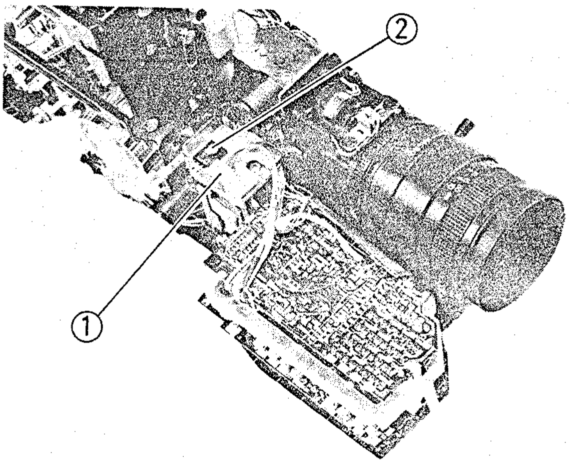


Fig. 2-32 8V Regulator Circuit Board Removal

Preamp Circuit Board Removal
(Figs. 2-33, 2-34, 2-35, 2-36, 2-37, 2-38)

1. Disconnect three (3) connectors (CN1501, CN602, CN404). (See Fig. 2-33)
2. Disconnect connector CN1107. (See Fig. 2-34)
3. Remove two (2) screws holding the camera section and VTR section. (See Figs. 2-35, 2-36)
4. Unsolder two (2) leads. (See Fig. 2-37)
5. Remove two (2) screws holding the preamp shield cover.
6. Unsolder the target lead. (See Fig. 2-38)
7. Remove one (1) screw and one (1) spring washer holding the preamp circuit board.

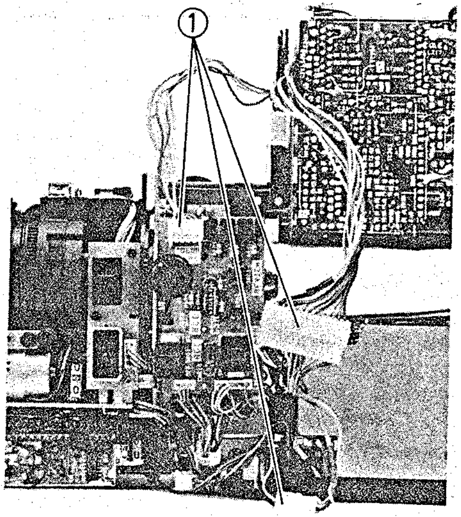


Fig. 2-33 Preamp Circuit Board Removal

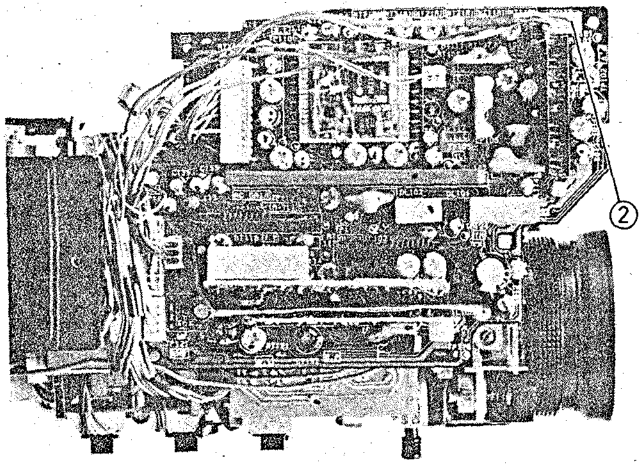


Fig. 2-34 Preamp Circuit Board Removal

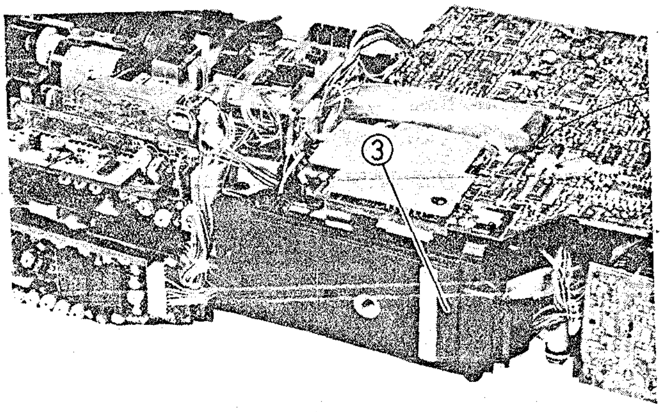


Fig. 2-35 Preamp Circuit Board Removal

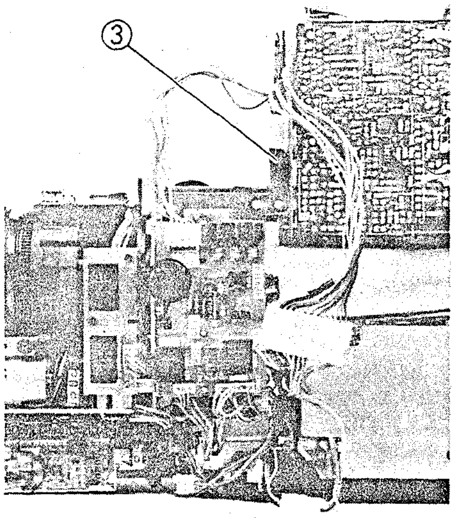


Fig. 2-36 Preamp Circuit Board Removal

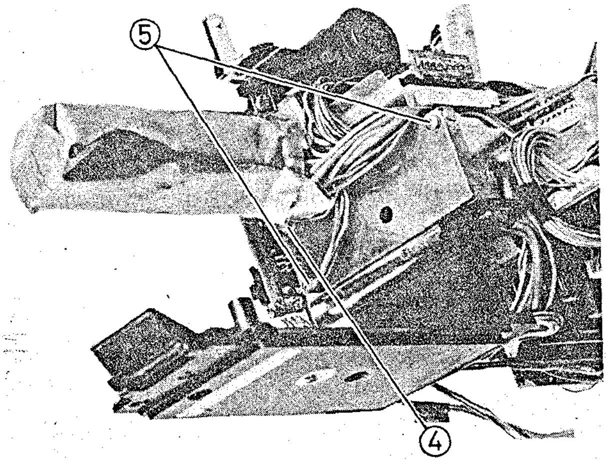


Fig. 2-37 Preamp Circuit Board Removal

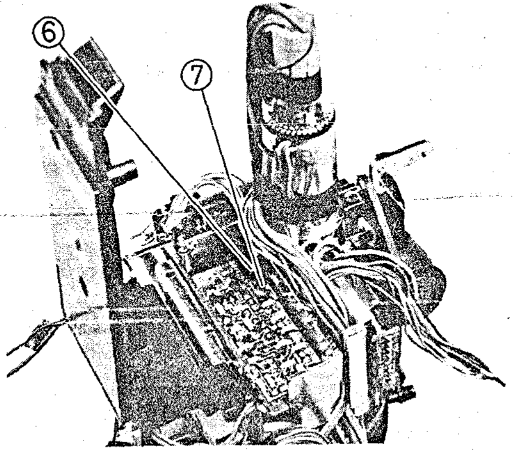


Fig. 2-38 Preamp Circuit Board Removal

EVF Connector Removal (Figs. 2-39, 2-40, 2-41)

1. Disconnect connector CN1505. (See Fig. 2-39)
2. Disconnect connector CN404. (See Fig. 2-40)
3. Remove one (1) screw holding the EVF connector. (See Fig. 2-41)

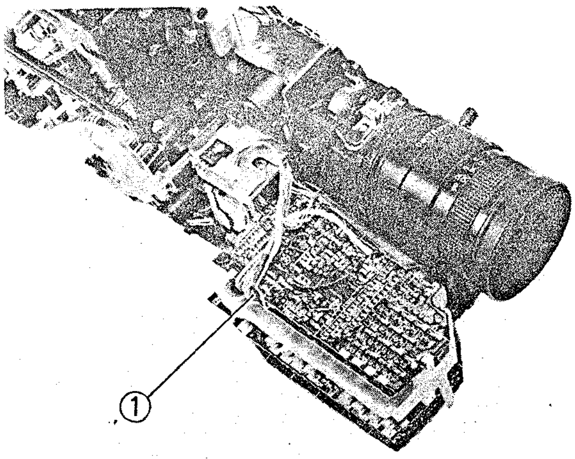


Fig. 2-39 EVF Connector Removal

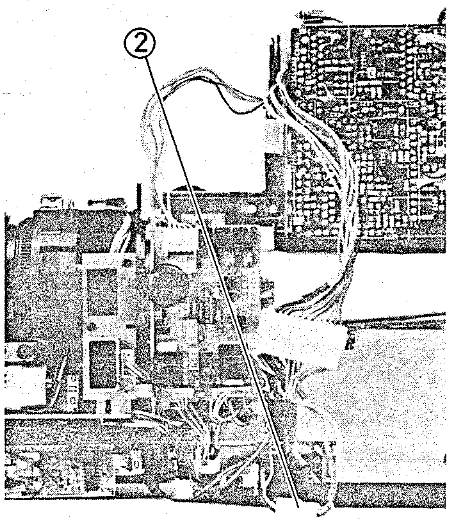


Fig. 2-40 EVF Connector Removal

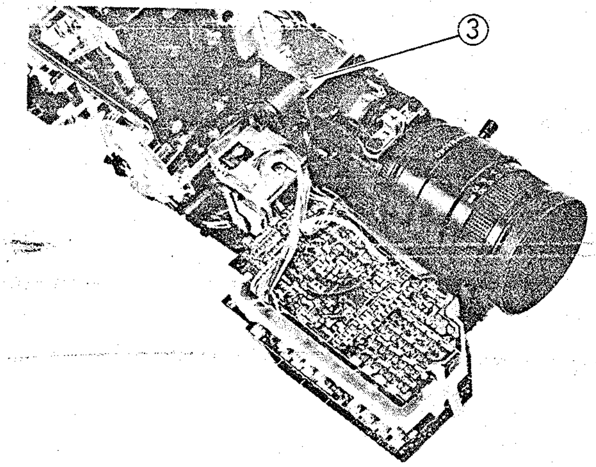


Fig. 2-41 EVF Connector Removal

Zoom Switch Circuit Board Removal (Fig. 2-42)

1. Remove two (2) screws holding the zoom switch circuit board holder.

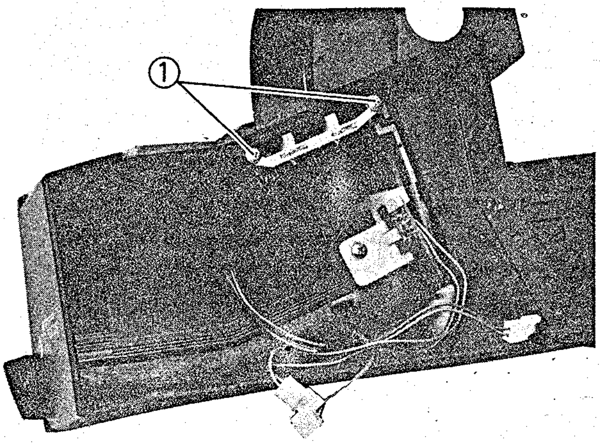


Fig. 2-42 Zoom Switch Circuit Board Removal

VTR REC Switch Circuit Board Removal (Figs. 2-43, 2-44)

1. Remove one (1) screw holding the VTR REC switch circuit board holder. (See Fig. 2-43)
2. Remove the VTR REC switch circuit board holder.
3. Release one (1) tab and remove the VTR REC switch circuit board. (See Fig. 2-44)

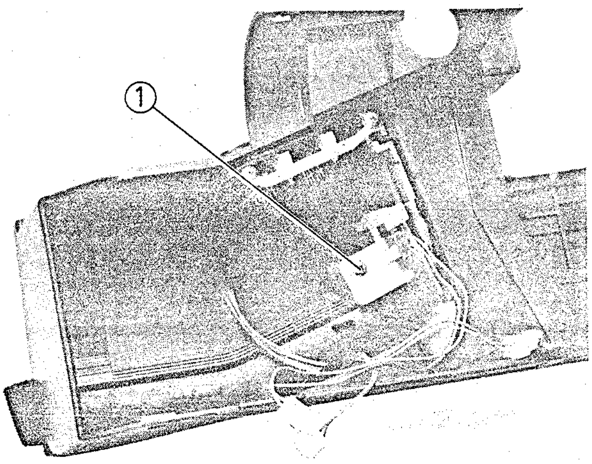


Fig. 2-43 VTR REC Switch Circuit Board Removal

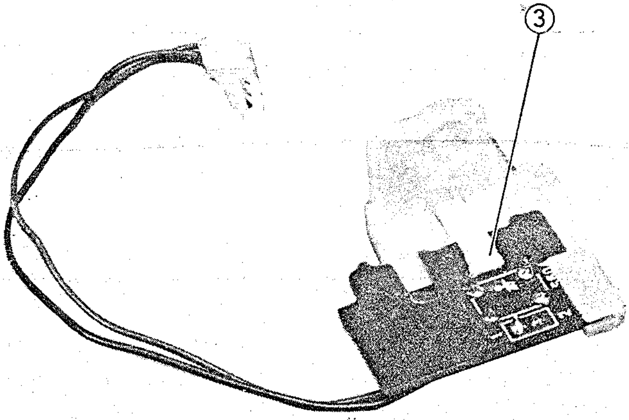


Fig. 2-44 VTR REC Switch Circuit Board Removal

CASSETTE LOADING MECHANISM

Remove the right case and left case as previously given.

Cassette Loading Mechanism Removal
(Figs. 2-45, 2-46, 2-47)

1. Remove the function circuit board. (See Figs. 2-11, 2-12, 2-13)
2. Remove the main circuit board. (See Figs. 2-14, 2-15, 2-16)
3. Remove the audio circuit board. (See Figs. 2-17, 2-18, 2-19)
4. Disconnect three (3) connectors (CN1501, CN602, CN404). (See Fig. 2-45)
5. Remove two (2) screws holding the camera section and VTR section. (See Figs. 2-46, 2-47)

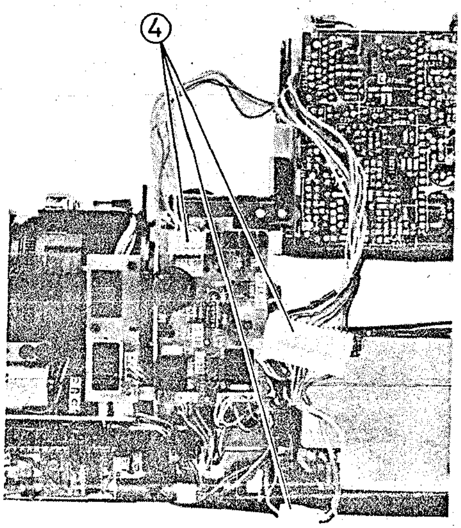


Fig. 2-45 Cassette Loading Mechanism Removal

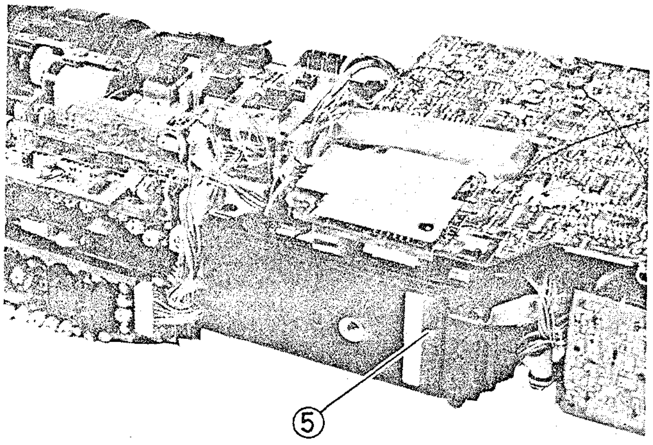


Fig. 2-46 Cassette Loading Mechanism Removal

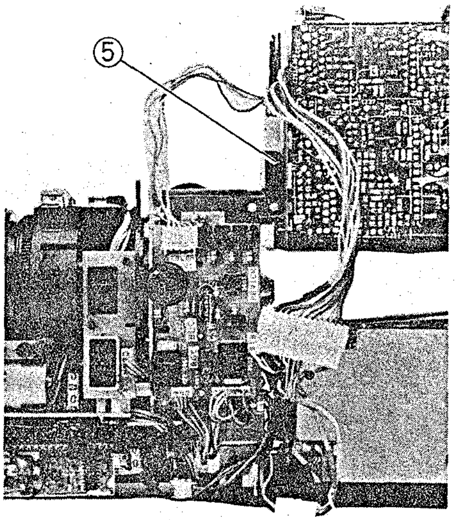


Fig. 2-47 Cassette Loading Mechanism Removal

Cassette Holder Removal (Figs. 2-48, 2-49, 2-50, 2-51, 2-52)

1. Disconnect three (3) connectors (CN501, CN602, CN404). (See Fig. 2-45)
2. Remove two (2) screws holding the camera section and VTR section. (See Figs. 2-46, 2-47)
3. Remove one (1) screw holding the safety tab switch. (See Fig. 2-48)
4. Release one (1) tab and lift up the cassette holder.
5. Remove the cassette holder spring. (See Fig. 2-49)
6. Remove two (2) screws holding the cassette holder. (See Figs. 2-49, 2-50)
7. Release two (2) tabs. (See Fig. 2-51, 2-52)
8. Move the front arm in the direction of the arrow (A).
9. Move the rear arm in the direction of the arrow (B).

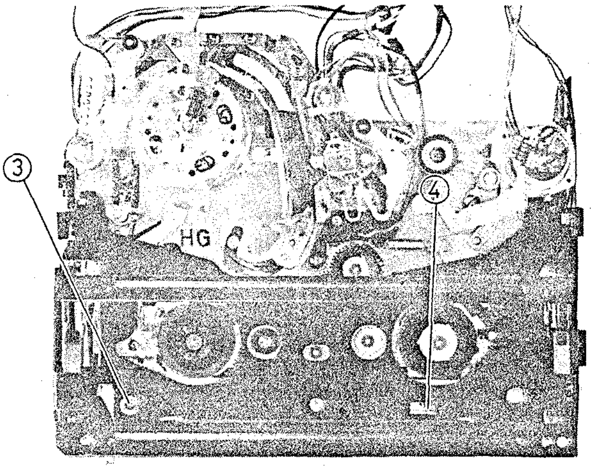


Fig. 2-48 Cassette Holder Removal

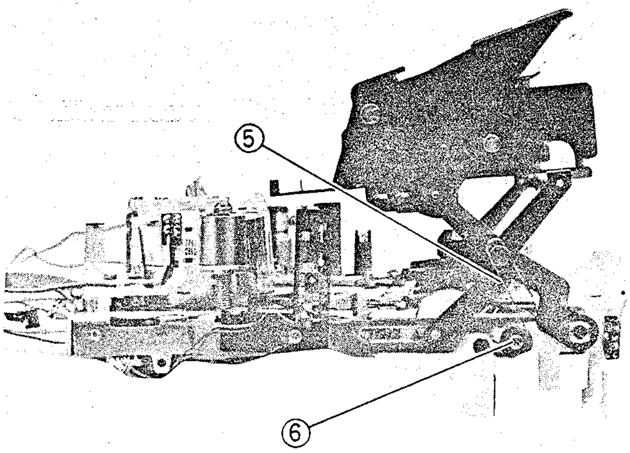


Fig. 2-49 Cassette Holder Removal

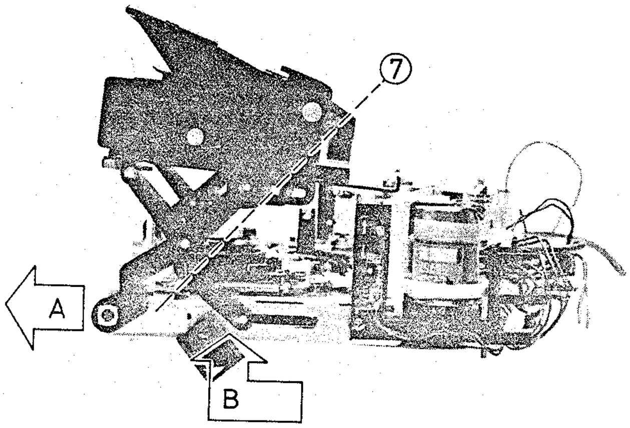


Fig. 2-52 Cassette Holder Removal

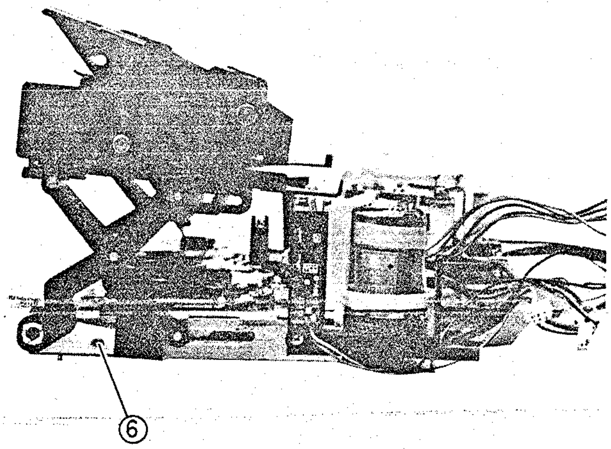


Fig. 2-50 Cassette Holder Removal

Video Head (Upper Cylinder) Removal (Figs. 2-53, 2-54)

1. Remove one (1) screw holding the cylinder motor brush. (See Fig. 2-53)
2. Unsolder eight (8) leads on the video head (upper cylinder). (See Fig. 2-54)
3. Remove two (2) screws and pull out the video head (upper cylinder).

Note: Be careful that your fingers or tools do not touch the video head tips during work.
Install the video head by the reverse procedure to removal.
Tighten the two (2) video head holding screws alternately.
Adjust as follows after installing the video head.
* Tracking Preset Adjustment
* A/C Head Adjustment
* Head Switching Point Adjustment
* Record Chroma and Luminance Level Adjustment

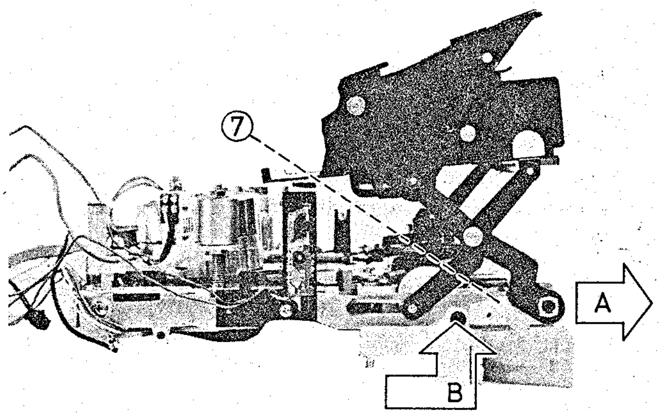


Fig. 2-51 Cassette Holder Removal

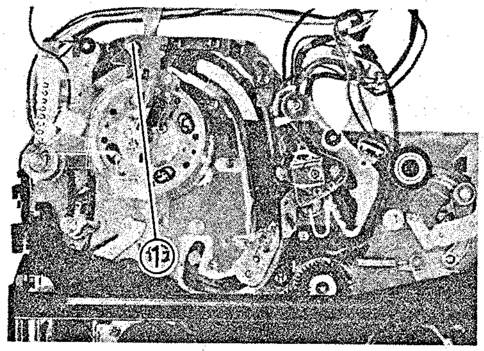


Fig. 2-53 Video Head (Upper Cylinder) Removal

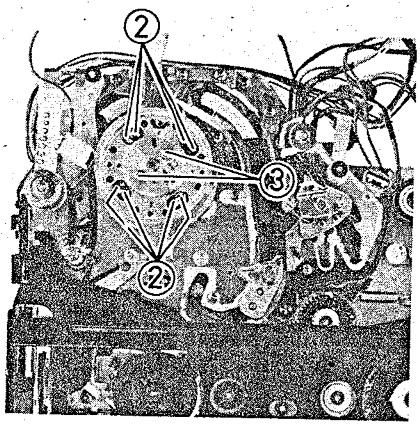


Fig. 2-54 Video Head (Upper Cylinder) Removal

Audio/Control (A/C) Head Removal (Figs. 2-55, 2-56, 2-57)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-12, 2-13)
2. Disconnect connector CN611. (See Fig. 2-55)
3. Open the audio circuit board. (See Fig. 2-18)
4. Disconnect connector CN415. (See Fig. 2-56)
5. Release wires from wire holder. (See Fig. 2-57)
6. Remove three (3) screws holding the A/C head.

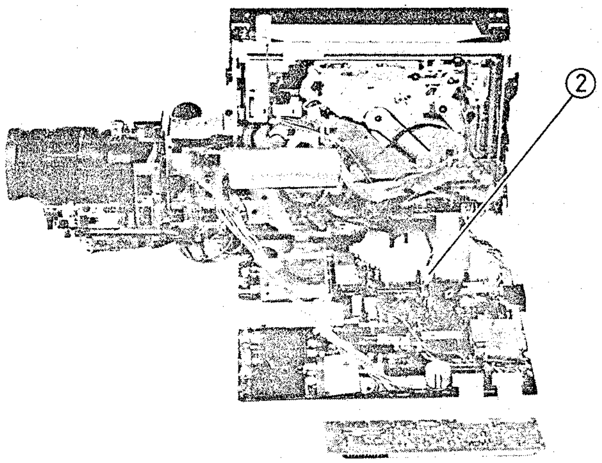


Fig. 2-55 Audio/Control (A/C) Head Removal

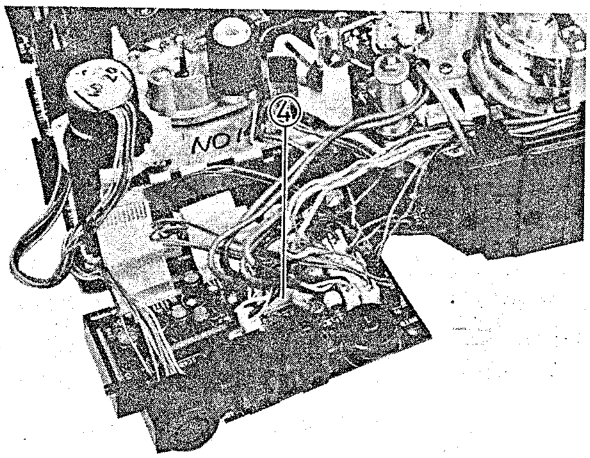


Fig. 2-56 Audio/Control (A/C) Head Removal

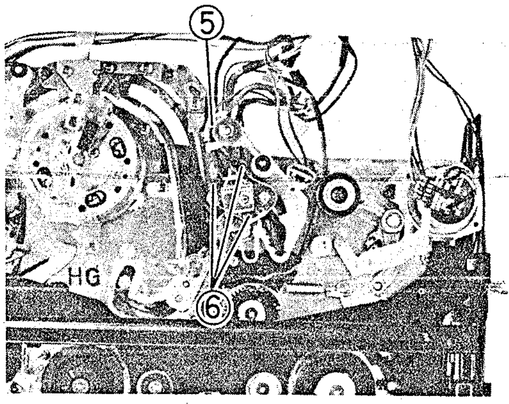


Fig. 2-57 Audio/Control (A/C) Head Removal

Full Erase (FE) Head Removal (Figs. 2-58, 2-59, 2-60)

1. Open the audio circuit board. (See Fig. 2-18)
2. Disconnect connector CN416. (See Fig. 2-58)
3. Remove the spring between the FE head base and chassis. (See Fig. 2-59)
4. Remove the washer and pull out the FE head base.
5. Remove one (1) screw holding the FE head. (See Fig. 2-2-60)

Note: Take care of the spring position when reinstalling.

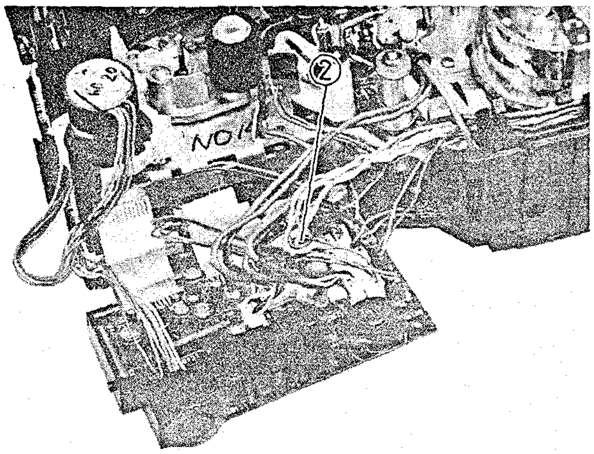


Fig. 2-58 Full Erase (FE) Head Removal

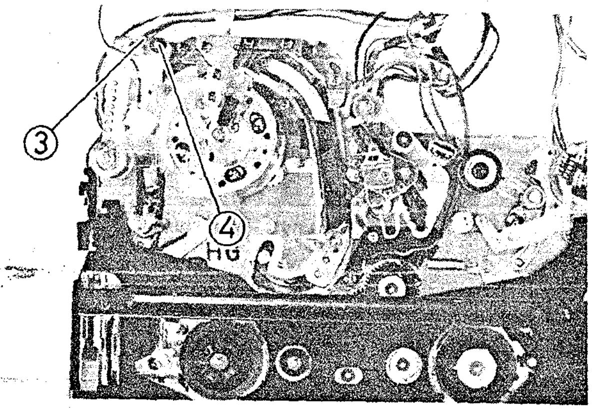


Fig. 2-59 Full Erase (FE) Head Removal

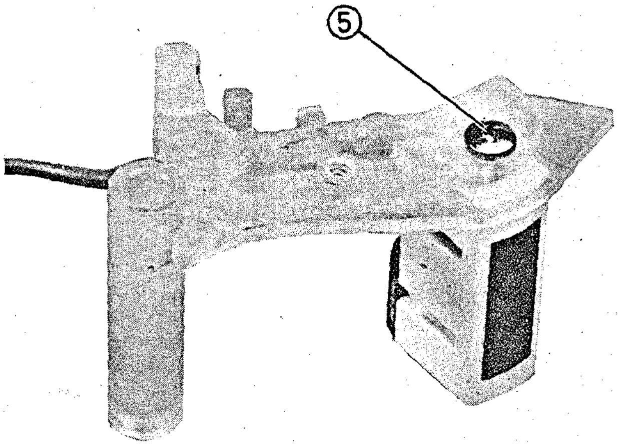


Fig. 2-60 Full Erase (FE) Head Removal

Supply End Sensor Removal (Figs. 2-61, 2-62, 2-63, 2-64)

1. Open the audio circuit board. (See Fig. 2-18)
2. Disconnect connector CN123. (See Fig. 2-61)
3. Remove two (2) screws holding the camera section and VTR section. (See Figs. 2-62, 2-63)
4. Release one (1) tab. (See Fig. 2-64)

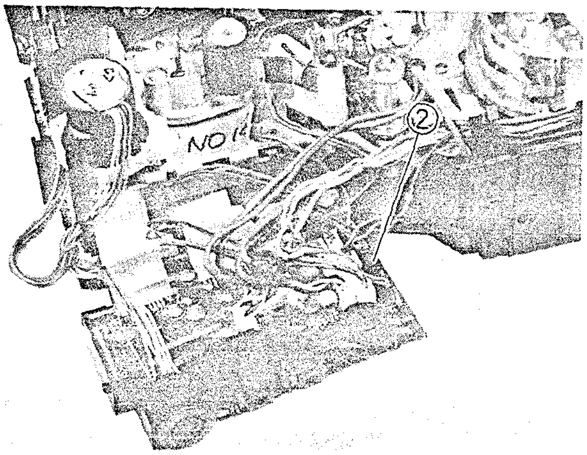


Fig. 2-61 Supply End Sensor Removal

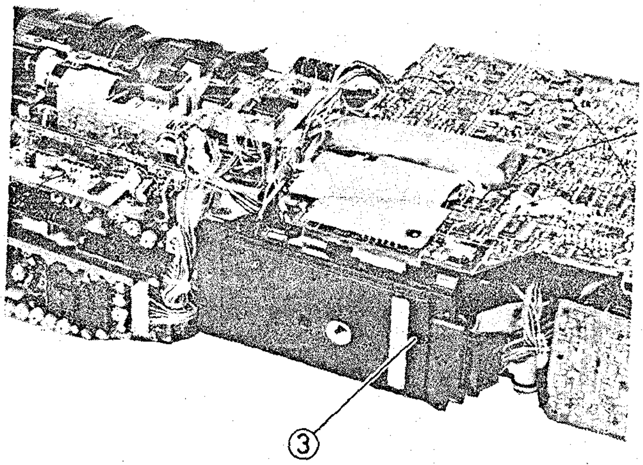


Fig. 2-62 Supply End Sensor Removal

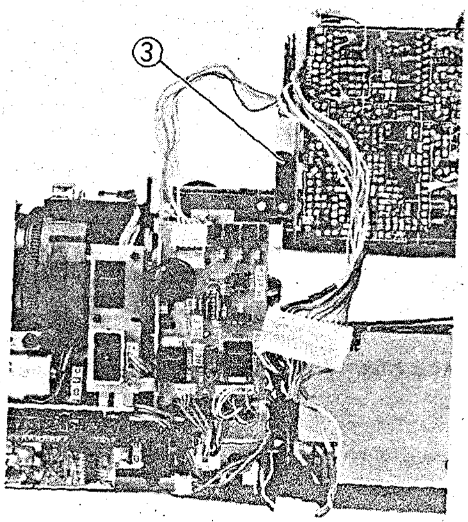


Fig. 2-63 Supply End Sensor Removal

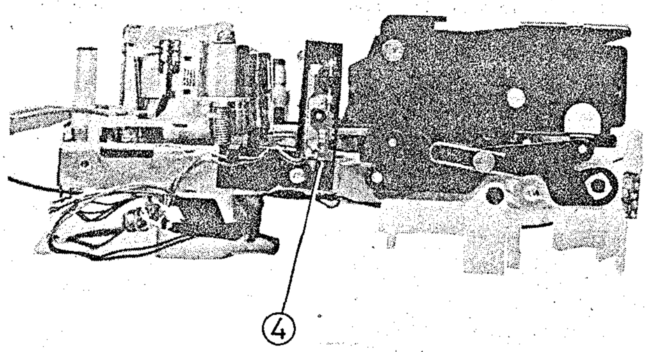


Fig. 2-64 Supply End Sensor Removal

Take-up End Sensor Removal (Figs. 2-65, 2-66)

1. Open the audio circuit board. (See Fig. 2-18)
2. Disconnect connector CN124. (See Fig. 2-65)
3. Release one (1) tab and remove the take-up end sensor. (See Fig. 2-66)

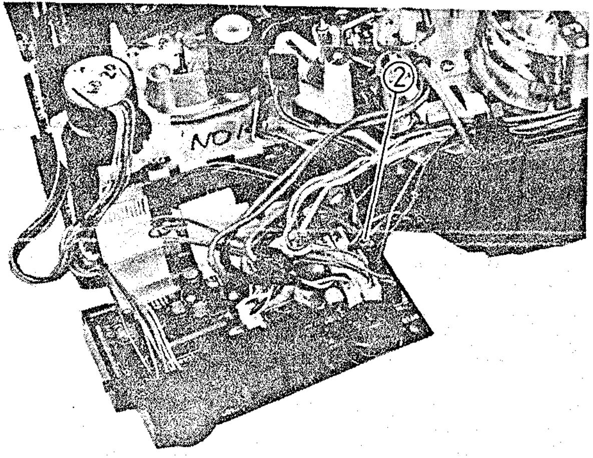


Fig. 2-65 Take-up End Sensor Removal

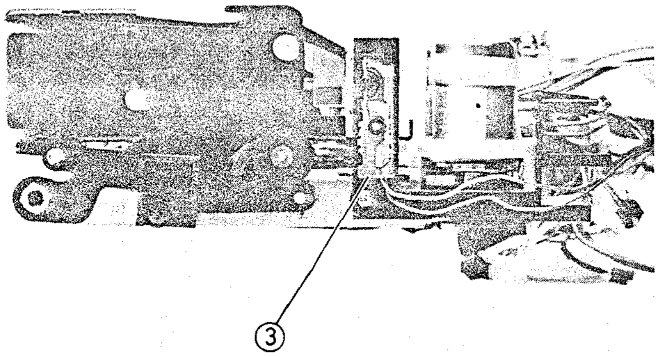


Fig. 2-66 Take-up End Sensor Removal

Reel Sensor Removal (Figs. 2-67, 2-68)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Open the audio circuit board. (See Fig. 2-18)
3. Disconnect connector CN119. (See Fig. 2-67)
4. Remove the wires from the wire holders. (See Fig. 2-68)
5. Remove the PB/REC drive arm. (See Fig. 2-109)
6. Remove the slider. (See Fig. 2-114)
7. Remove one (1) screw holding the reel sensor.

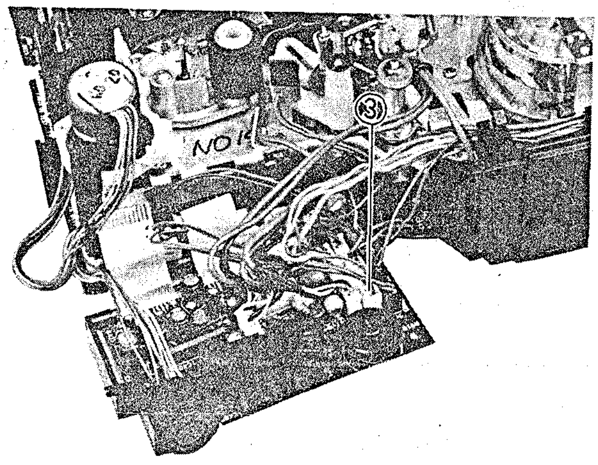


Fig. 2-67 Reel Sensor Removal

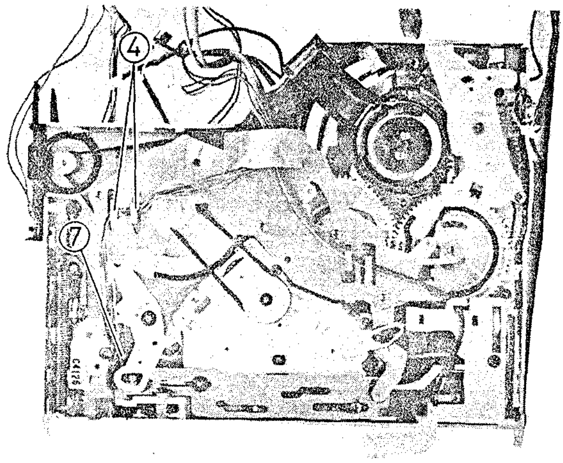


Fig. 2-68 Reel Sensor Removal

Dew Sensor Removal (Figs. 2-69, 2-70)

1. Open the audio circuit board. (See Fig. 2-18)
2. Disconnect connector CN120. (See Fig. 2-69)
3. Remove one (1) screw holding the dew sensor. (See Fig. 2-70)

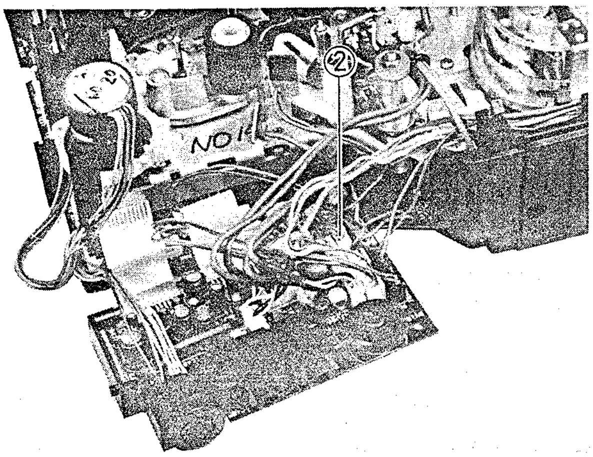


Fig. 2-69 Dew Sensor Removal

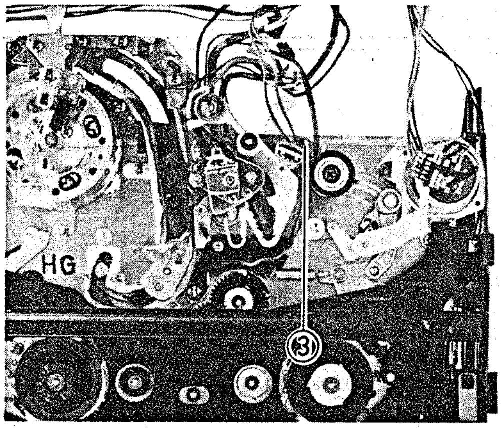


Fig. 2-70 Dew Sensor Removal

Cassette Holder Switch Removal (Figs. 2-71, 2-72, 2-73)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Open the audio circuit board. (See Fig. 2-18)
3. Disconnect connector CN121. (See Fig. 2-71)
4. Remove the cassette holder. (See Figs. 2-48, 2-49, 2-50, 2-51, 2-52)
5. Remove the wires from the wire holders. (See Fig. 2-72)
6. Remove one (1) screw holding the cassette holder switch. (See Fig. 2-73)

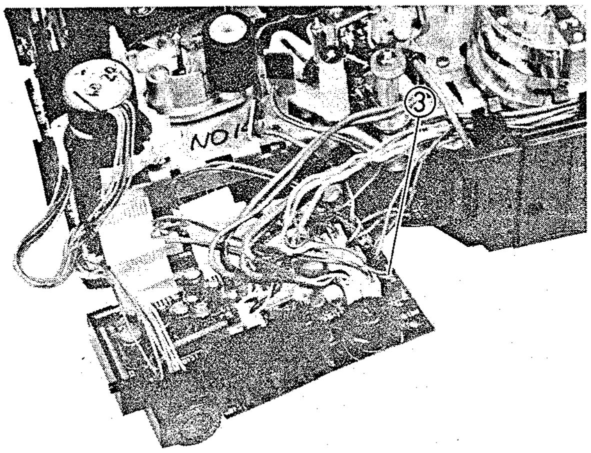


Fig. 2-71 Cassette Holder Switch Removal

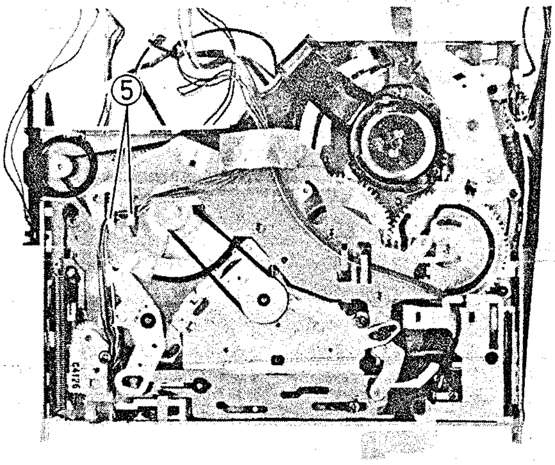


Fig. 2-72 Cassette Holder Switch Removal

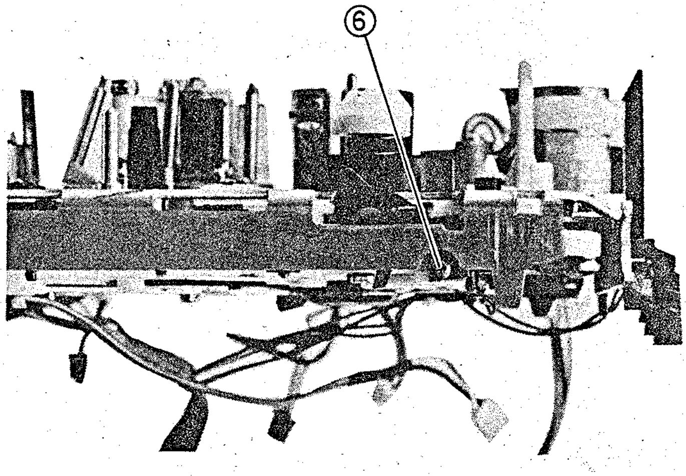


Fig. 2-73 Cassette Holder Switch Removal

Safety Tab Switch Removal (Figs. 2-74, 2-75, 2-76)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Open the audio circuit board. (See Fig. 2-18)
3. Disconnect connector CN122. (See Fig. 2-74)
4. Remove the wires form the wire holders. (See Fig. 2-75)
5. Remove one (1) screw holding the safety tab switch. (See Fig. 2-76)

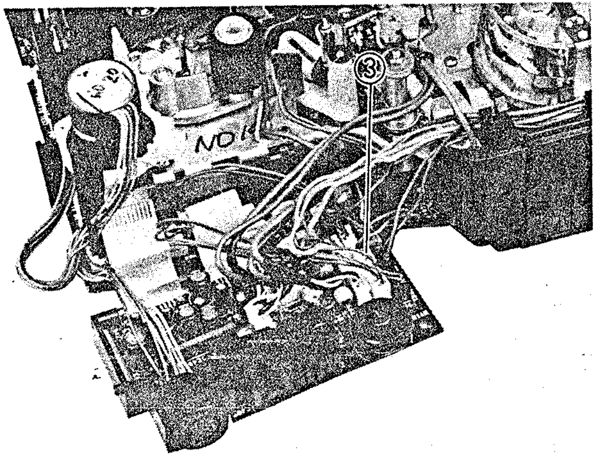


Fig. 2-74 Safety Tab Switch Removal

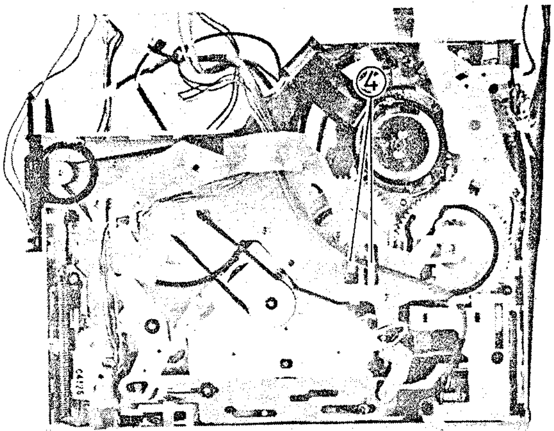


Fig. 2-75 Safety Tab Switch Removal

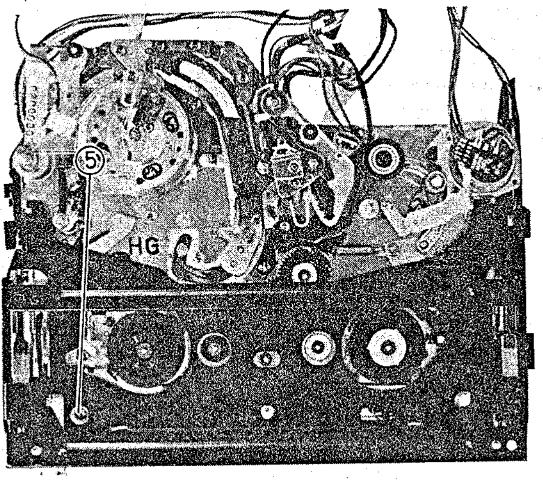


Fig. 2-76 Safety Tab Switch Removal

Mechanism State Switch Removal (Figs. 2-77, 2-78, 2-79)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Open the audio circuit board. (See Figs. 2-18)
3. Disconnect connector CN117. (See Fig. 2-77)
4. Remove one (1) screw holding the mechanism state switch. (See Fig. 2-78)
5. Remove the mechanism state switch holder in the direction of the arrow.
6. Remove the washer and remove the cam gear T. (See Fig. 2-79)
7. Remove one (1) screw holding the mechanism state switch.

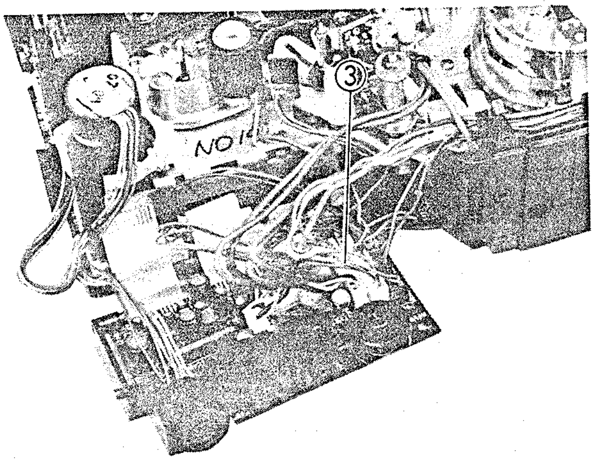


Fig. 2-77 Mechanism State Switch Removal

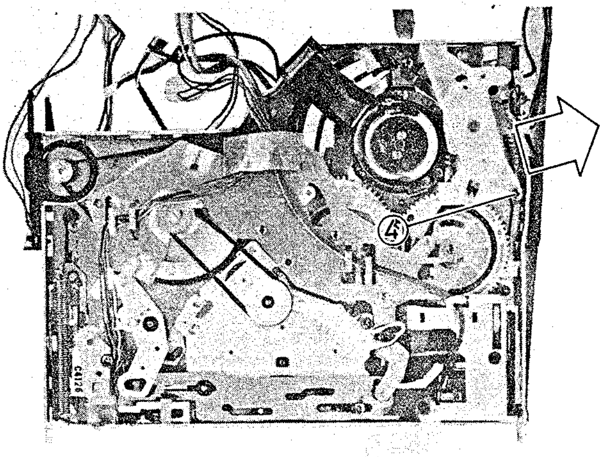


Fig. 2-78 Mechanism State Switch Removal

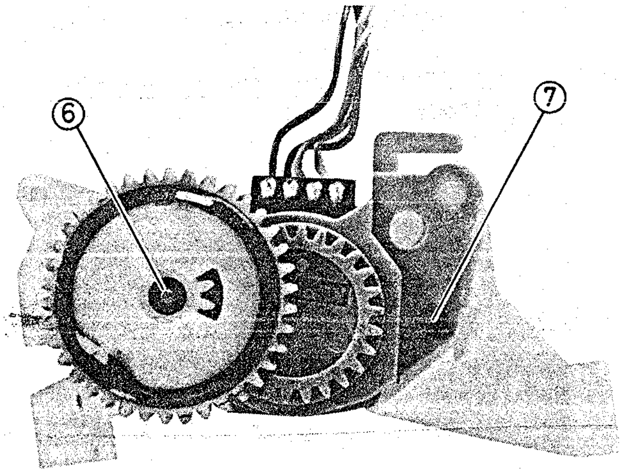


Fig. 2-79 Mechanism State Switch Removal

End Lamp Removal (Figs. 2-80, 2-81)

1. Open the audio circuit board. (See Fig. 2-18)
2. Disconnect connector CN125. (See Fig. 2-80)
3. Remove the spring between the chassis and end lamp. (See Fig. 2-81)
4. Remove one (1) screw holding the end lamp.

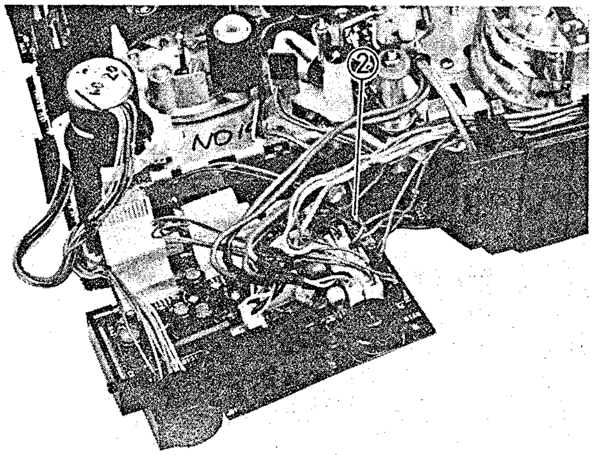


Fig. 2-80 End Lamp Removal

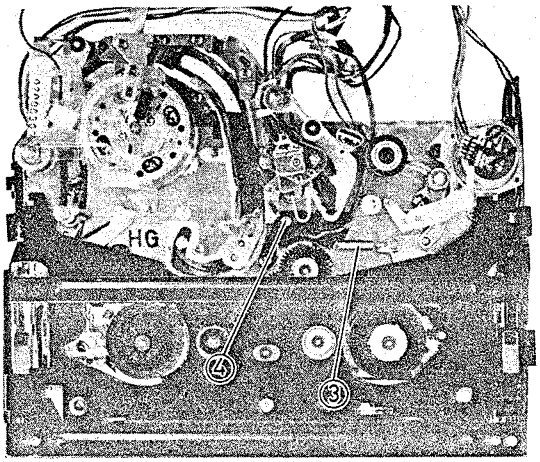


Fig. 2-81 End Lamp Removal

Lower Cylinder (Cylinder Motor) Removal
(Figs. 2-82, 2-83)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Disconnect two (2) flat cables (CN613, CN214). (See Fig. 2-82)
3. Remove three (3) screws holding the lower cylinder and cylinder shield. (See Fig. 2-83)

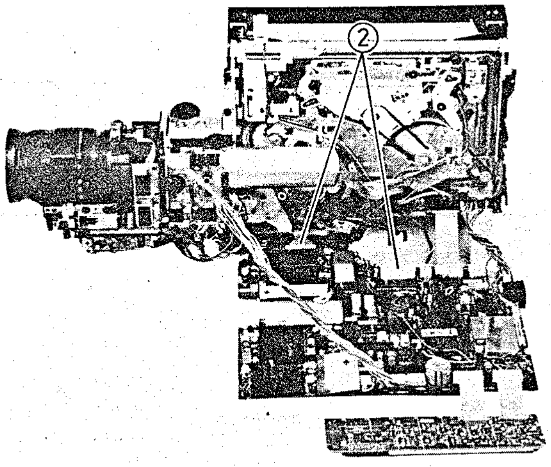


Fig. 2-82 Lower Cylinder (Cylinder Motor) Removal

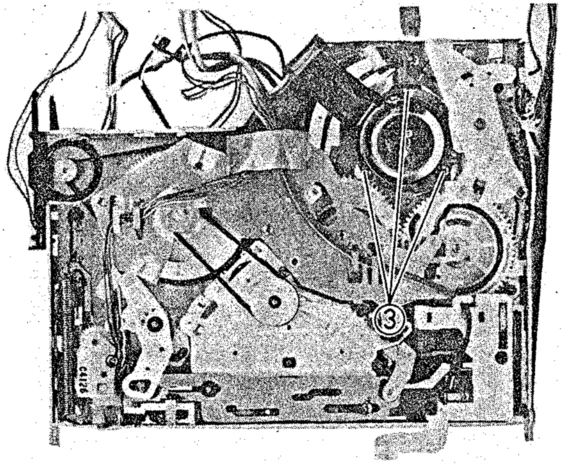


Fig. 2-83 Lower Cylinder (Cylinder Motor) Removal

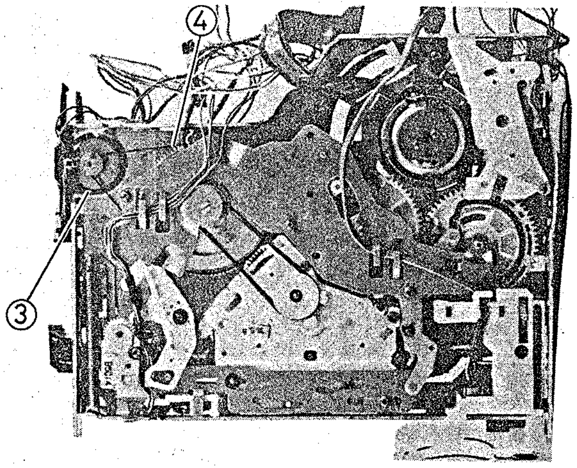


Fig. 2-85 Capstan Motor Removal

Capstan Motor Removal (Figs. 2-84, 2-85, 2-86, 2-87)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Disconnect connector CN612. (See Fig. 2-84)
3. Remove the belt cover. (See Fig. 2-85)
4. Remove the belt from the capstan motor pulley.
5. Lift the cassette holder. (See Fig. 2-48)
6. Remove two (2) screws holding the capstan motor holder. (See Fig. 2-86)
7. Remove two (2) screws holding the capstan motor. (See Fig. 2-87)

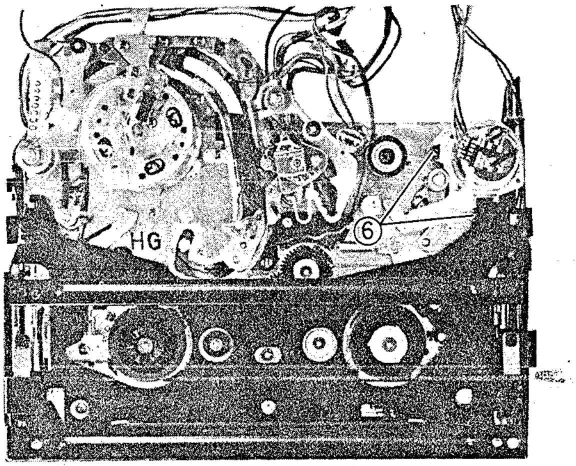


Fig. 2-86 Capstan Motor Removal

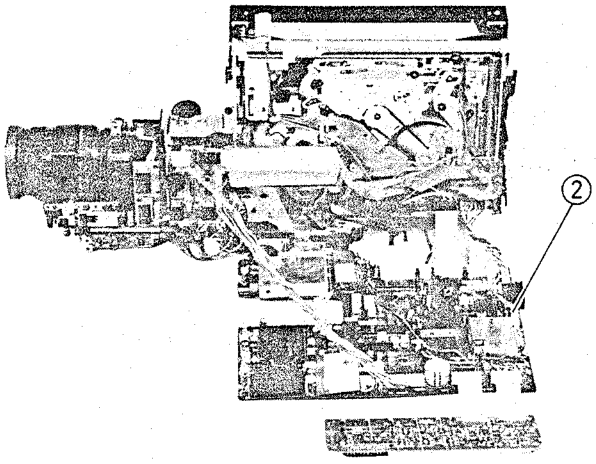


Fig. 2-84 Capstan Motor Removal

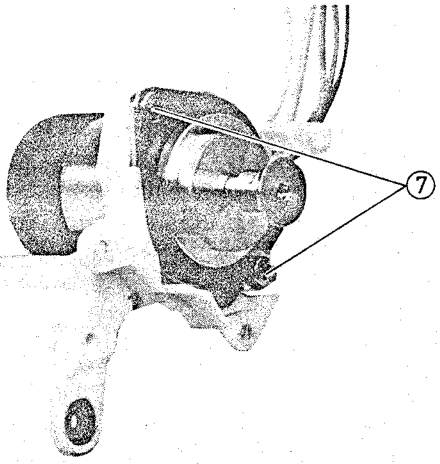


Fig. 2-87 Capstan Motor Removal

Loading Motor Removal (Figs. 2-88, 2-89, 2-90)

1. Open the audio circuit board. (See Fig. 2-18)
2. Disconnect connector CN118. (See Fig. 2-88)
3. Remove the wires from the wire holders. (See Fig. 2-89)
4. Remove three (3) screws holding the loading motor block.
5. Remove the belt of the loading motor. (See Fig. 2-90)
6. Remove two (2) screws holding the loading motor.

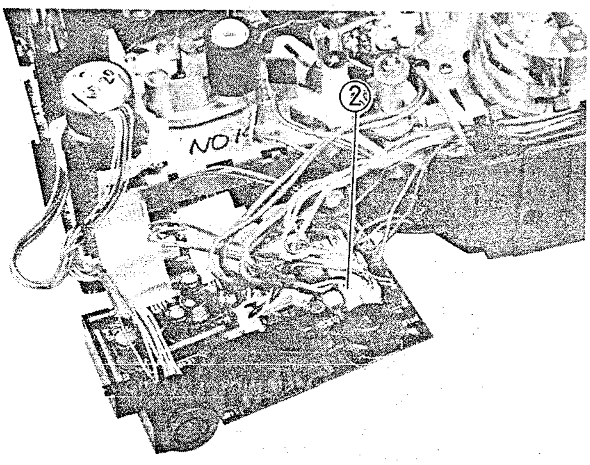


Fig. 2-88 Loading Motor Removal

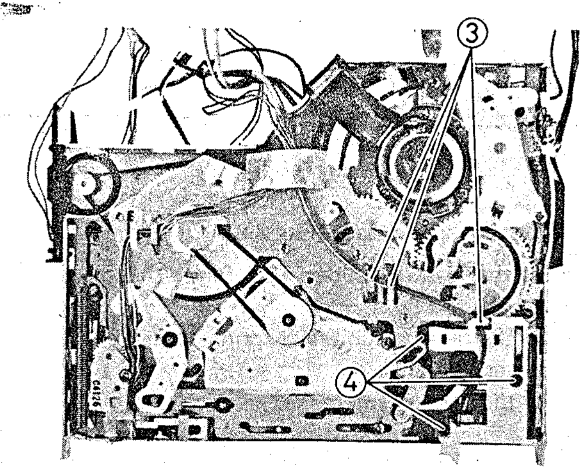


Fig. 2-89 Loading Motor Removal

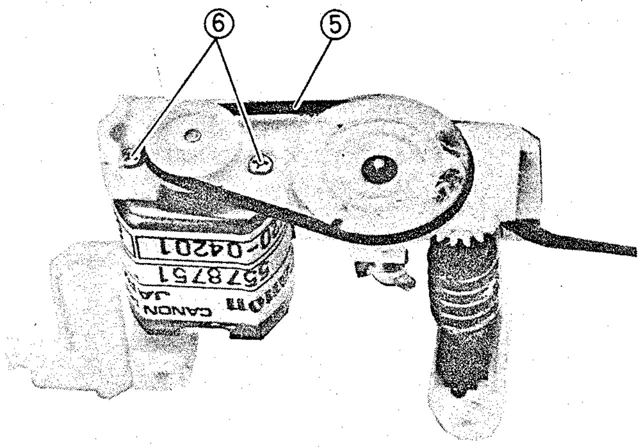


Fig. 2-90 Loading Motor Removal

Catcher Block Removal (Figs. 2-91, 2-92)

1. Remove one (1) screws holding the cylinder motor brush. (See Fig. 2-91)
2. Remove three (3) screws holding the cylinder assembly. (See Fig. 2-92)
3. Remove three (3) screws holding the catcher block.

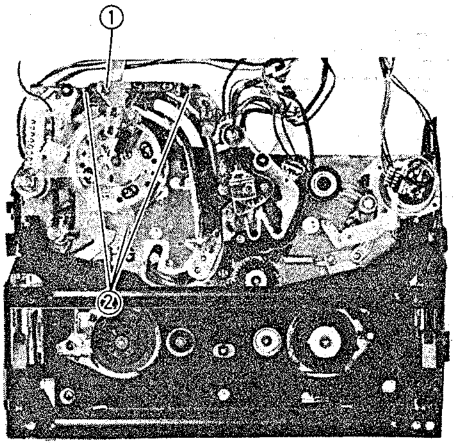


Fig. 2-91 Catcher Block Removal

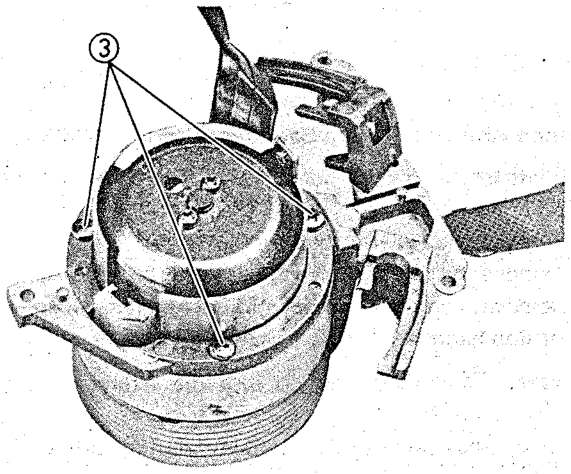


Fig. 2-92 Catcher Block Removal

Impedance Roller Removal (Fig. 2-93)

1. Remove the cylinder motor brush. (See Fig. 2-91)
2. Remove one (1) nut and pull out the impedance roller. (See Fig. 2-93)

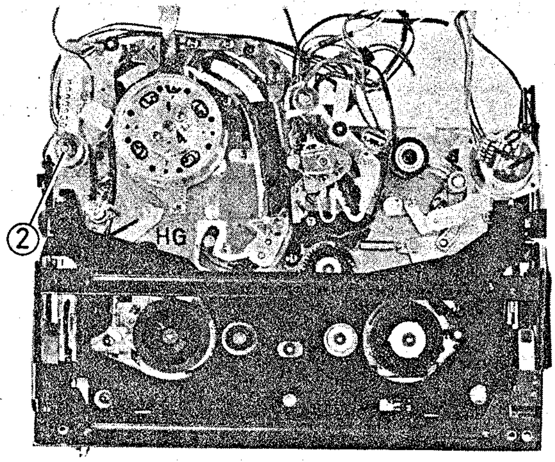


Fig. 2-93 Impedance Roller Removal

Pressure Roller Arm Removal (Fig. 2-94)

1. Remove the capstan motor holder. (See Fig. 2-86)
2. Pull out the pressure roller arm. (See Fig. 2-94)

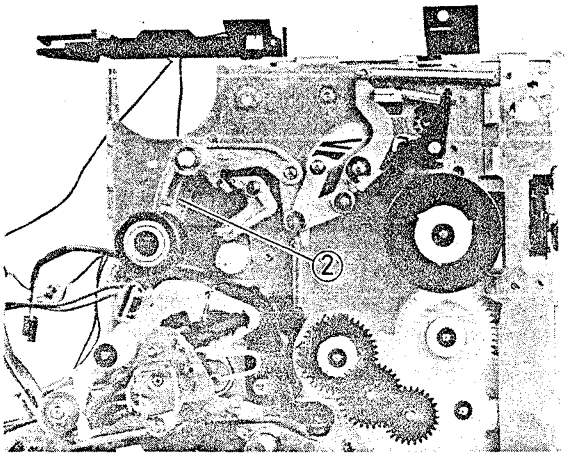


Fig. 2-94 Pressure Roller Removal

Tension Arm and Tension Band Removal (Figs. 2-95, 2-96)

1. Remove the cassette holder. (See Figs. 2-48, 2-49, 2-50, 2-51, 2-52)
2. Remove one (1) washer. (See Fig. 2-95)
3. Remove the tension spring (See Fig. 2-96)
4. Remove two (2) screws holding the tension arm and tension band.

Note: Take care not to lose the screws and spring holder when removing the screws. Because they may pop out due to the tension of spring.

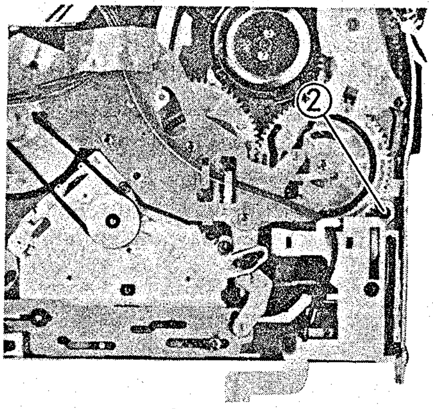


Fig. 2-95 Tension Arm and Tension Band Removal

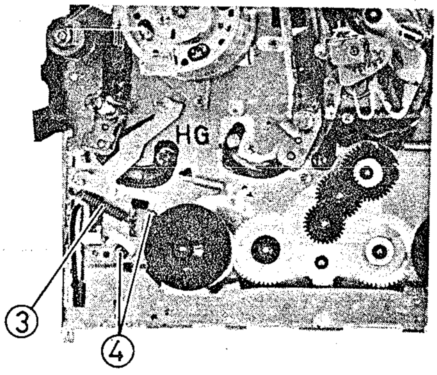


Fig. 2-96 Tension Arm and Tension Band Removal

Take-up Sub Brake Removal (Fig. 2-97)

1. Remove the cassette holder. (See Figs. 2-48, 2-49, 2-50, 2-51, 2-52)
2. Remove the take-up sub brake spring. (See Fig. 2-97)
3. Release one (1) tab.
4. Pull out the take-up sub brake.

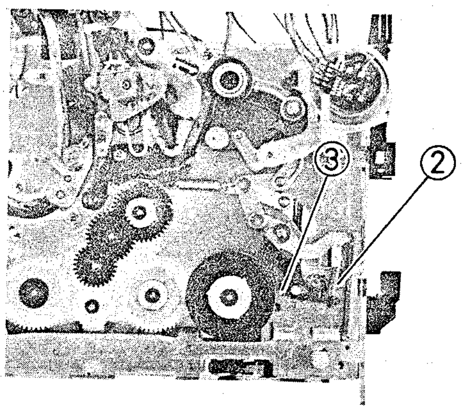


Fig. 2-97 Take-up Sub Brake Removal

Supply Sub Brake Removal (Fig. 2-98)

1. Remove the cassette holder. (See Figs. 2-48, 2-49, 2-50, 2-51, 2-52)
2. Remove the supply sub brake spring. (See Fig. 2-98)
3. Release one (1) tab.
4. Pull out the supply sub brake.

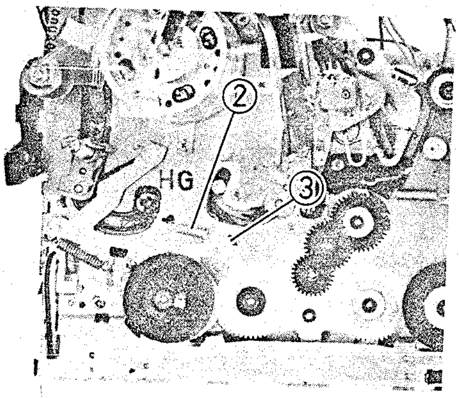


Fig. 2-98 Supply Sub Brake Removal

Take-up Reel Disk Removal (Fig. 2-99)

1. Remove the cassette holder. (See Figs. 2-48, 2-49, 2-50, 2-51, 2-52)
2. Remove one (1) washer and pull out the take-up reel disk. (See Fig. 2-99)

   Note: Take care not to lose the washer in the lower section.

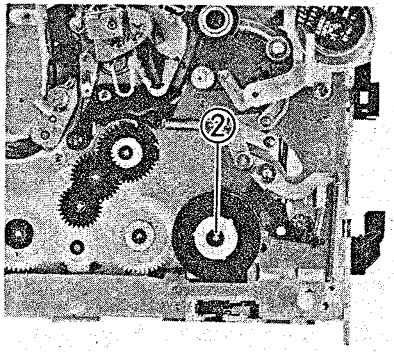


Fig. 2-99 Take-up Reel Disk Removal

Supply Reel Disk Removal (Fig. 2-100)

1. Remove the cassette holder. (See Fig. 2-48, 2-49, 2-50, 2-51, 2-52)
2. Remove the tension arm and tension band (See Figs. 2-95, 2-96)
3. Release the supply sub brake. (See Fig. 2-100)
4. Remove one (1) washer and pull out the supply reel table.

   Note: Take care not to lose the washer in the lower section. Reinstall the supply reel disk by the reverse procedure to removal.

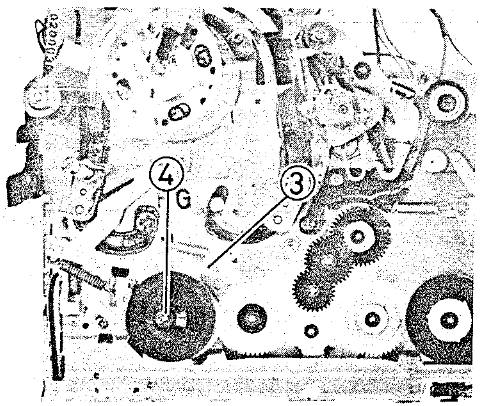


Fig. 2-100 Supply Reel Disk Removal

Guide Post (1) and Guide Post (2) Removal (Fig. 2-101)

1. Remove one (1) nut holding the guide post (1).
2. Remove one (1) nut holding the guide post (2).

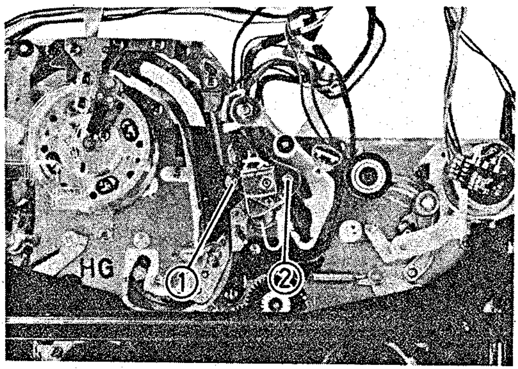


Fig. 2-101 Guide Post (1) and Guide Post (2) Removal

A/C Head Base Removal (Fig. 2-102)

1. Remove the A/C head. (See Figs. 2-55, 2-56, 2-57)
2. Remove one (1) nut, two (2) washers and one (1) bearing. (See Fig. 2-102)
3. Pull out the A/C head base.

Note: Reinstall the A/C head base so the A/C head height adjustment nut is positioned 2.5 to 3 mm below the point of the shaft.
After reinstalling, perform the following adjustments.

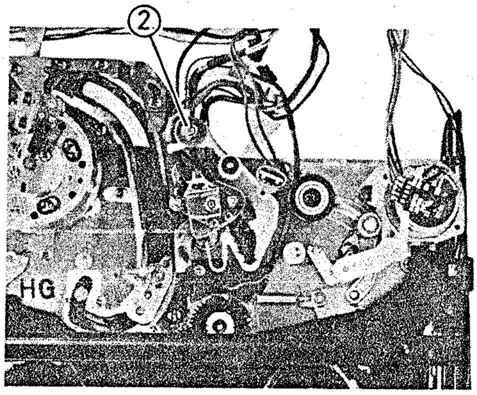


Fig. 2-102 A/C Head Base Removal

Guide Arm Assembly Removal (Fig. 2-103)

1. Remove the A/C head. (See Figs. 2-55, 2-56, 2-57)
2. Remove the A/C head base. (See Fig. 2-102)
3. Remove one (1) washer and pull out the guide arm assembly. (See Fig. 2-103)

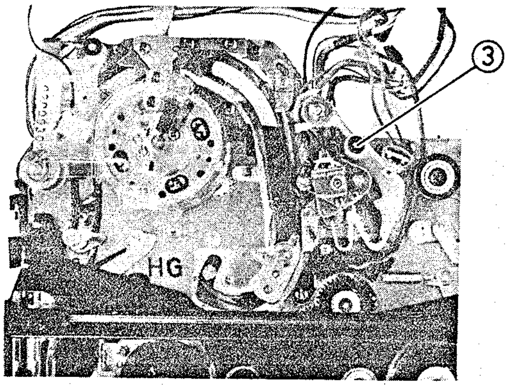


Fig. 2-103 Guide Arm Assembly Removal

Supply Guide Roller and Take-up Guide Roller Removal (Fig. 2-104)

1. Remove one (1) hex screw holding the supply guide roller.
2. Remove the guide roller cap.
3. Remove one (1) hex screw holding the take-up guide roller.

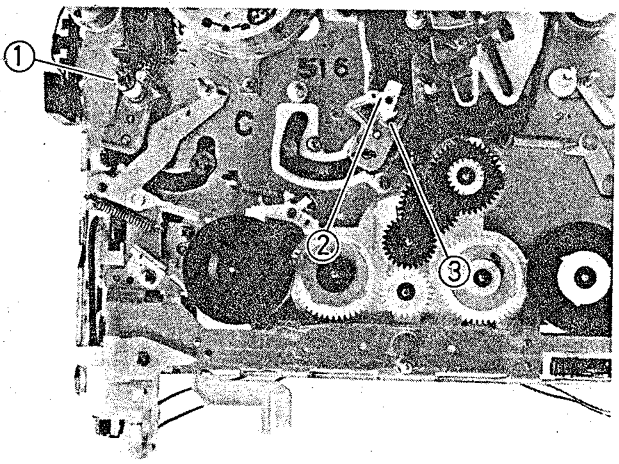


Fig. 2-104 Supply Guide Roller and Take-up Guide Roller Removal

Cam Gear Plate Removal (Fig. 2-105)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Remove the wires from wire holders. (See Fig. 2-105
3. Remove the belt cover.
4. Remove five (5) screws holding the cam gear plate.

Note: When reinstalling, tighten all the screws and then loose them by 3/4 turns.

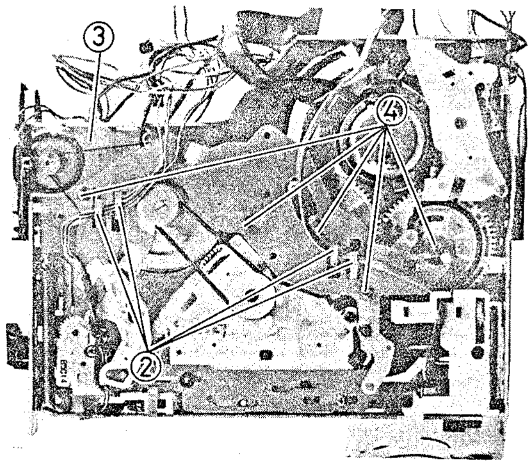


Fig. 2-105 Cam Gear Plate Removal

Capstan Flywheel Removal (Figs. 2-106, 2-107)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Remove the cam gear plate. (See Fig. 2-105)
3. Remove two (2) belts from the capstan flywheel. (See Fig. 2-106)
4. Remove one (1) washer and pull out the capstan flywheel. (See Fig. 2-107)

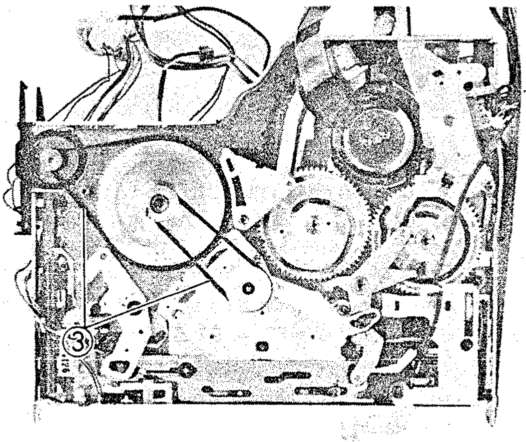


Fig. 2-106 Capstan Flywheel Removal

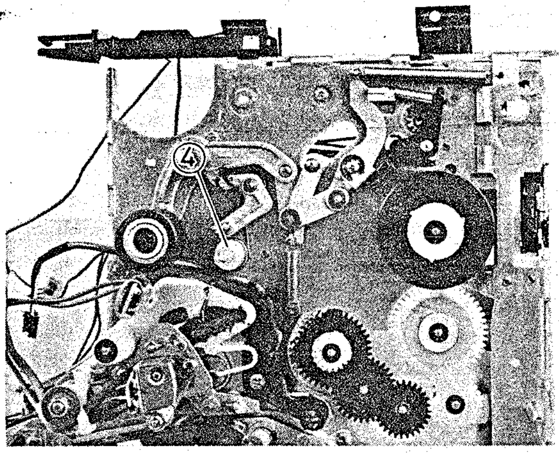


Fig. 2-107 Capstan Flywheel Removal

A/C Head Control Arm Removal (Fig. 2-108)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Remove the cam gear plate. (See Fig. 2-105)
3. Pull out the A/C head control arm. (See Fig. 2-108)

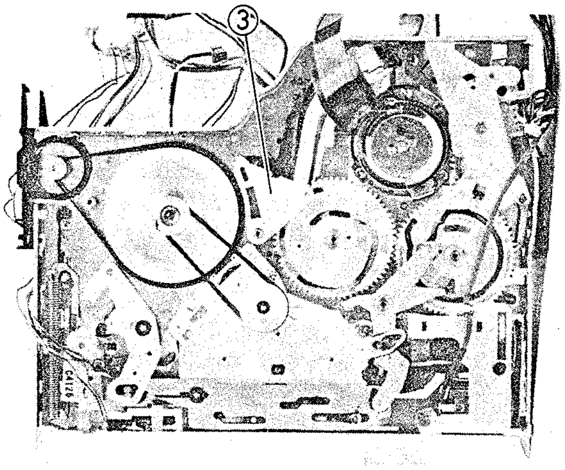


Fig. 2-108 A/C Head Control Arm Removal

PB/REC Drive Arm Removal (Fig. 2-109)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Remove one (1) washer and pull out the PB/REC drive arm. (See Fig. 2-109)

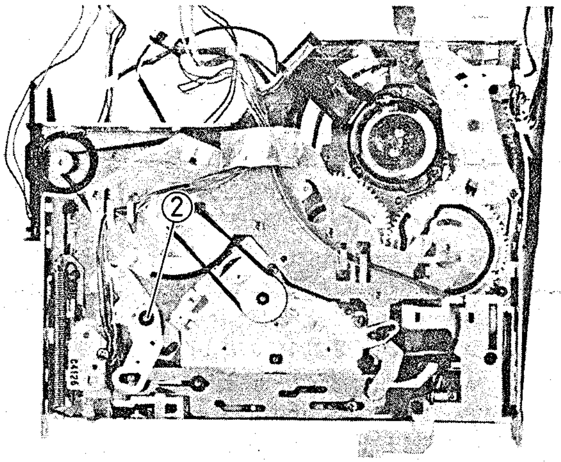


Fig. 2-109 PB/REC Drive Arm Removal

Cam Gear Arm (1) and (2) Removal (Fig. 2-110)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Remove the cam gear plate. (See Fig. 2-105)
3. Release one (1) tab and remove the idler drive arm.
4. Pull out the cam gear arm (1) and (2). (See Fig. 2-110)

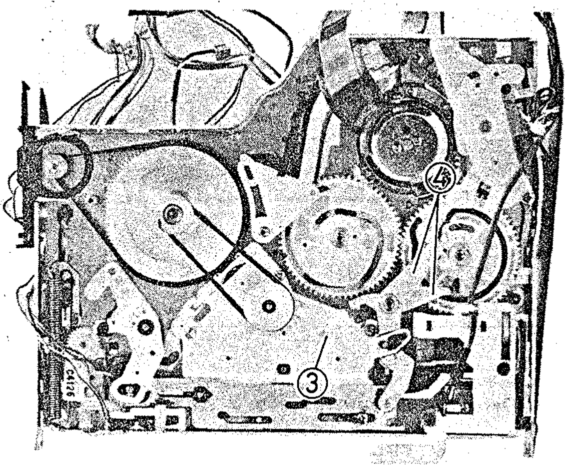


Fig. 2-110 Cam Gear Arm (1) and (2) Removal

Supply and Take-up Loading Cam Gears Removal (Fig. 2-111, 2-112)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Remove the mechanism state switch holder. (See Figs. 2-2-77, 2-78, 2-79)
3. Remove the loading motor block. (See Fig. 2-89)
4. Remove the cam gear plate. (See Fig. 2-105)
5. Remove the A/C head control arm. (See Fig. 2-108)
6. Remove the cam gear arm (1) and (2). (See Fig. 2-110)
7. Turn the loading cam gear to set the guide roller to the loading state. (See Fig. 2-111)
8. Remove one (1) E ring. (See Fig. 2-112)
9. Remove two (2) E rings and pull out the loading cam gear. (See Fig. 2-111)

Note: After reinstalling the loading cam gears, adjust the mechanism state switch.

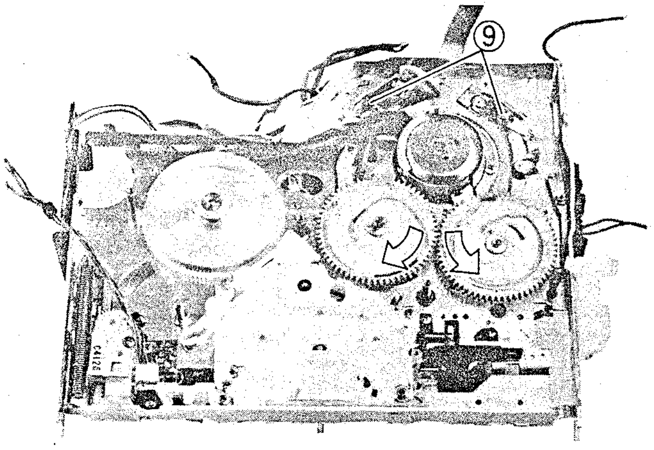


Fig. 2-111 Supply and Take-up Loading Cam Gears Removal

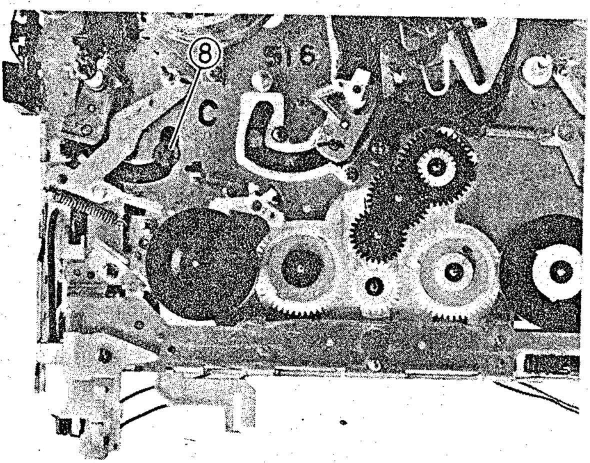


Fig. 2-112 Supply and Take-up Loading Cam Gears Removal

Guide Roller Base Removal (Fig. 2-113)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Remove the loading motor block. (See Fig. 2-89)
3. Remove the mechanism state switch holder. (See Figs. 2-77, 2-78, 2-79)
4. Remove the cam gear plate. (See Fig. 2-105)
5. Remove the cam gear arm (1) and (2). (See Fig. 2-110)
6. Remove the loading cam gear. (See Fig. 2-111, 2-112)
7. Remove two (2) screws holding the limit plate and guide roller base. (See Fig. 2-113)

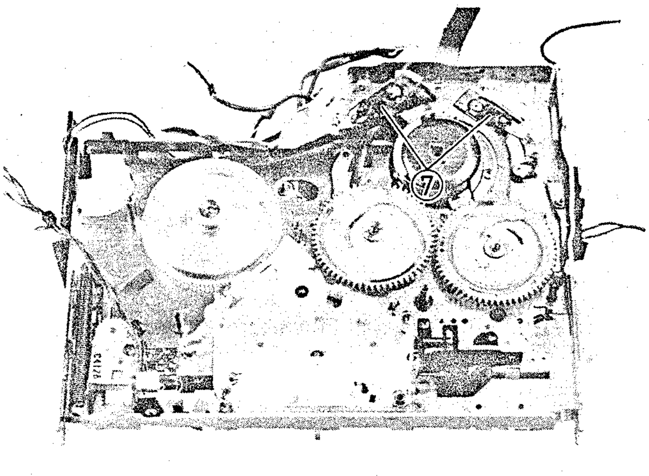


Fig. 2-113 Guide Roller Base Removal

Slider Removal (Fig. 2-114)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Remove the cam gear plate. (See Fig. 2-105)
3. Remove the PB/REC drive arm. (See Fig. 2-109)
4. Remove the cam gear arm (1) and (2). (See Fig. 2-110)
5. Remove one (1) screw and one (1) washer holding the slider. (See Fig. 2-114)

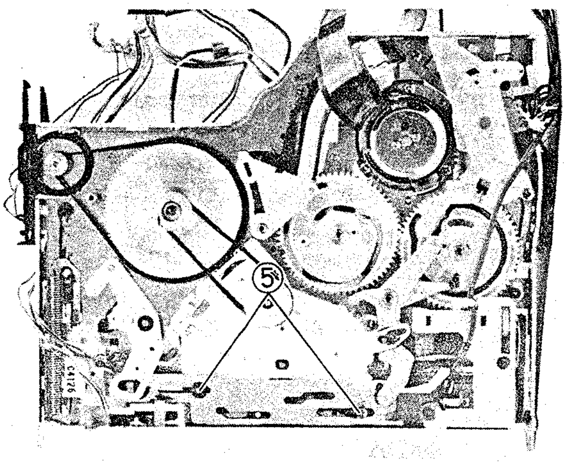


Fig. 2-114 Slider Removal

Reel Gear Block Removal (Fig. 2-115)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Remove the cam gear plate. (See Fig. 2-105)
3. Remove the PB/REC drive arm. (See Fig. 2-109)
4. Remove the cam gear arm (1) and (2). (See Fig. 2-109)
5. Remove the slider. (See Fig. 2-114)
6. Remove the belt from the reel gear block. (See Fig. 2-115)
7. Remove three (3) screws holding the reel gear block.

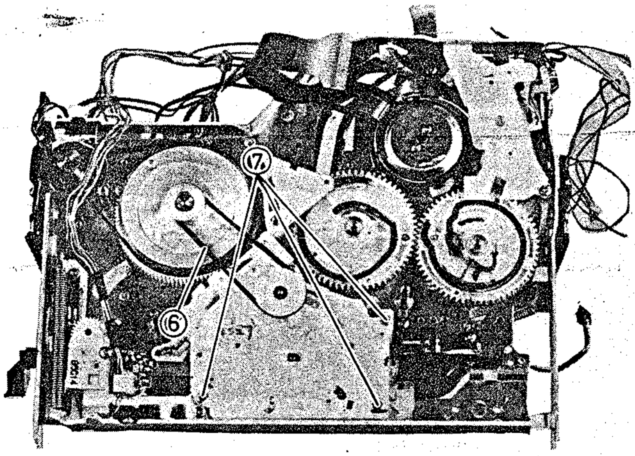


Fig. 2-115 Reel Gear Block Removal

Main Brake Arm Removal (Fig. 2-116)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Remove the cam gear plate. (See Fig. 2-105)
3. Remove the PB/REC drive arm. (See Fig. 2-109)
4. Remove the cam gear arm (1) and (2). (See Fig. 2-110)
5. Remove the slider. (See Fig. 2-114)
6. Remove the reel gear block. (See Fig. 2-115)
7. Pull out the main brake drive arm. (See Fig. 2-116)

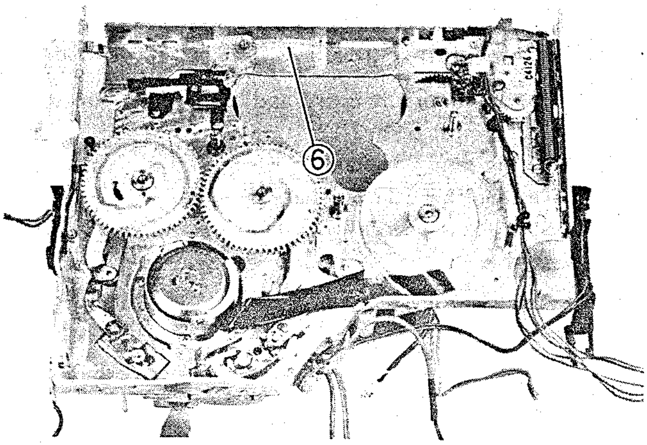


Fig. 2-116 Main Brake Arm Removal

Damper Removal (Fig. 2-117)

1. Open the main circuit board and function switch circuit board. (See Fig. 2-11, 2-12)
2. Remove one (1) screw holding the damper. (See Fig. 2-117)

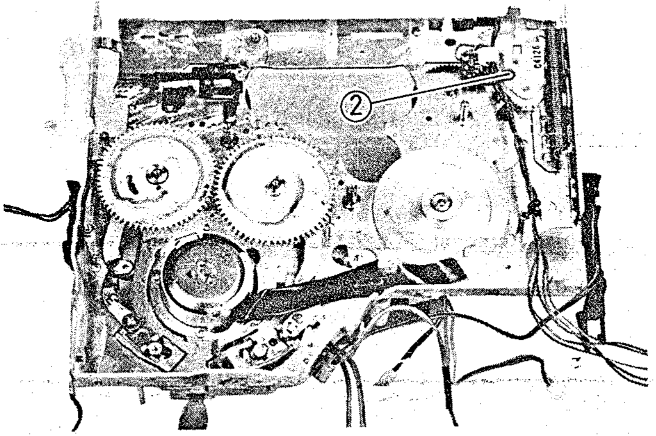


Fig. 2-117 Damper Removal

Up Slider Removal (Fig. 2-118)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Remove the cam gear plate. (See Fig. 2-105)
3. Remove the PB/REC drive arm. (See Fig. 2-109)
4. Remove the cam gear arm (1) and (2). (See Fig. 2-109)
5. Remove the slider. (See Fig. 2-114)
6. Remove the damper. (See Fig. 2-117)
7. Remove the up slider spring. (See Fig. 2-118)
8. Remove one (1) screw holding the lock holder.
9. Remove the up slider in the direction of the arrow.

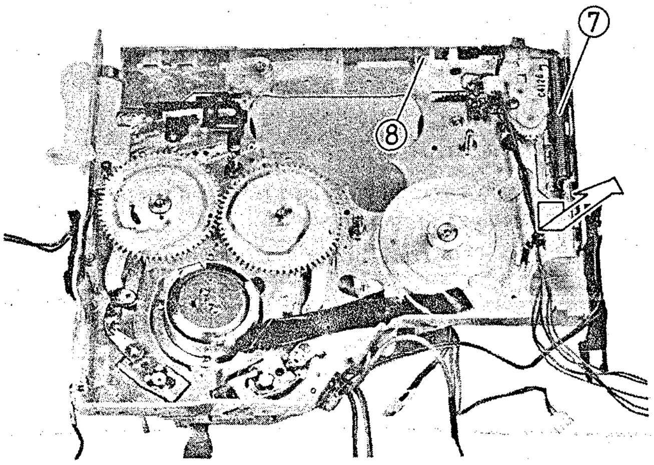


Fig. 2-118 Up Slider Removal

Quick Slider Removal (Fig. 2-119)

1. Open the main circuit board and function switch circuit board. (See Figs. 2-11, 2-12)
2. Remove the loading motor block. (See Figs. 2-88, 2-89)
3. Remove the cam gear plate. (See Fig. 2-105)
4. Remove the PB/REC drive arm. (See Fig. 2-109)
5. Remove the cam gear arm (1) and (2). (See Fig. 2-110)
6. Remove two (2) screws holding the quick slider. (See Fig. 2-119)

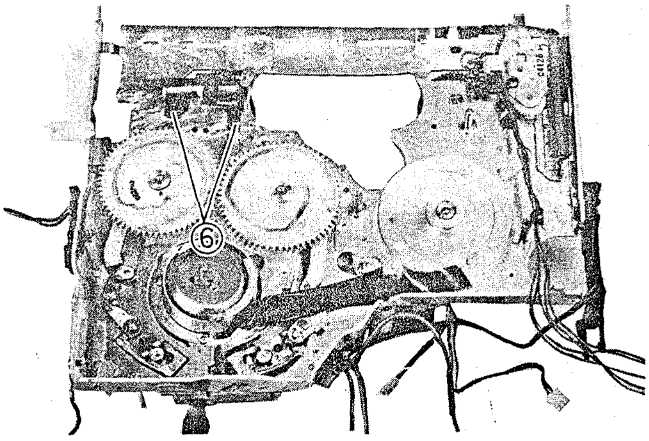


Fig. 2-119 Quick Slider Removal

Saticon Removal (Figs. 2-120, 2-121, 2-122)

1. Remove the camera switch circuit board. (See Figs. 2-29, 2-30, 2-31)
2. Remove the preamp circuit board. (See Figs. 2-33, 2-34, 2-35, 2-36, 2-37, 2-38)
3. Strip the saticon shield. (See Fig. 2-120)
4. Disconnect saticon socket. (See Fig. 2-121)
5. Remove four (4) screws holding the saticon cover.
6. Release four (4) tabs and remove the bias light. (See Fig. 2-122)

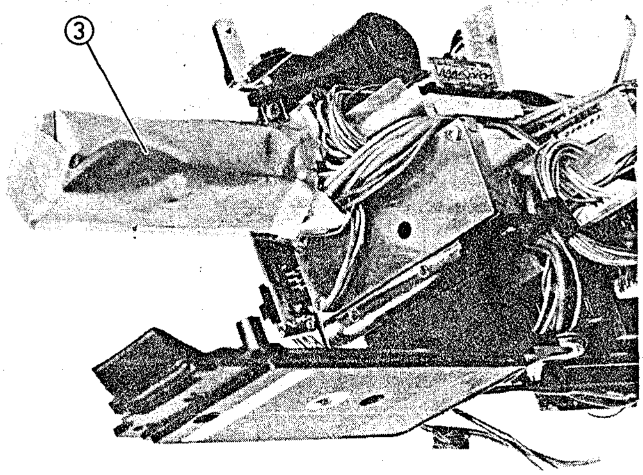


Fig. 2-120 Saticon Removal

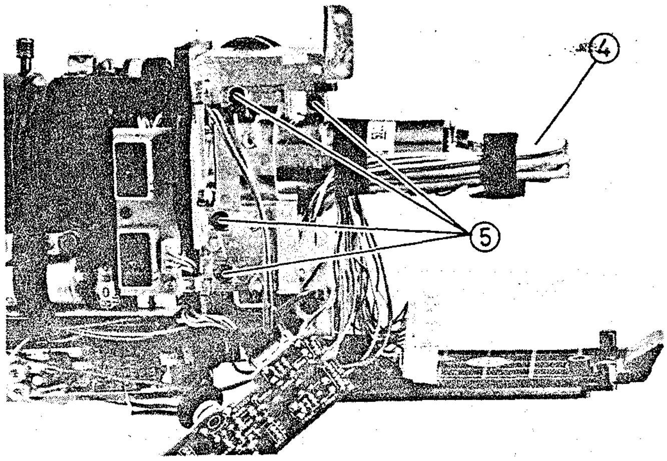


Fig. 2-121 Saticon Removal

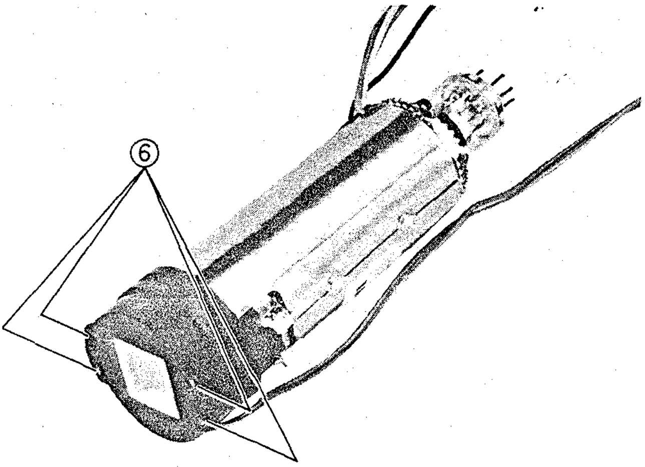


Fig. 2-122 Saticon Removal

LENS BLOCK

Lens Block Removal
(Figs. 2-123, 2-124, 2-125, 2-126, 2-127, 2-128)

1. Disconnect CN1018. (See Fig. 2-123)
2. Open the regulator circuit board. (See Fig. 2-24)
3. Disconnect two (2) connectors (CN1508, CN1524). (See Fig. 2-124)
4. Remove the camera switch circuit board. (See Figs. 2-29, 2-30, 2-31)
5. Remove the EVF connector. (See Figs. 2-39, 2-40, 2-41)
6. Remove three (3) screws holding the lens block. (See Figs. 2-126, 2-127, 2-128)

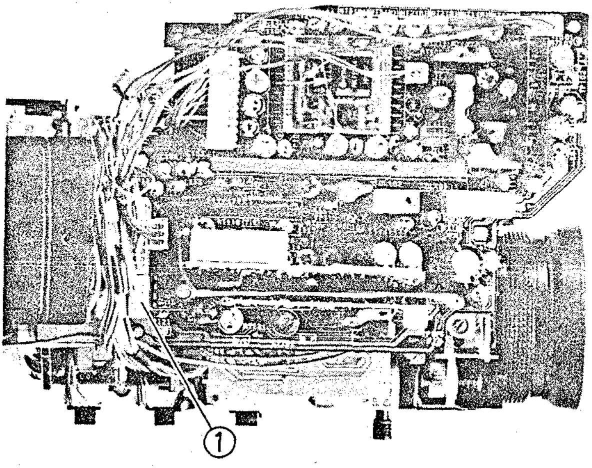


Fig. 2-123 Lens Block Removal

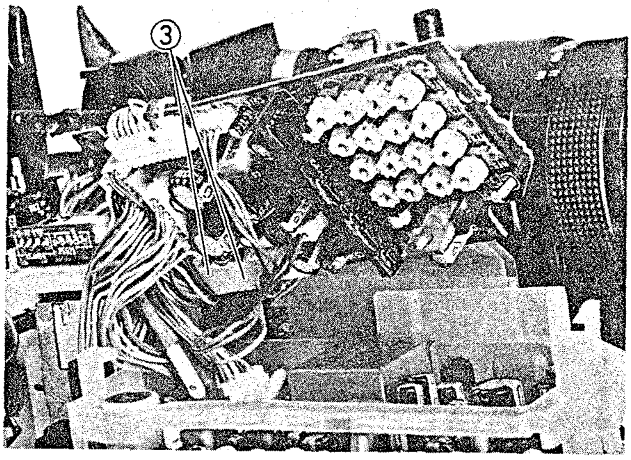


Fig. 2-124 Lens Block Removal

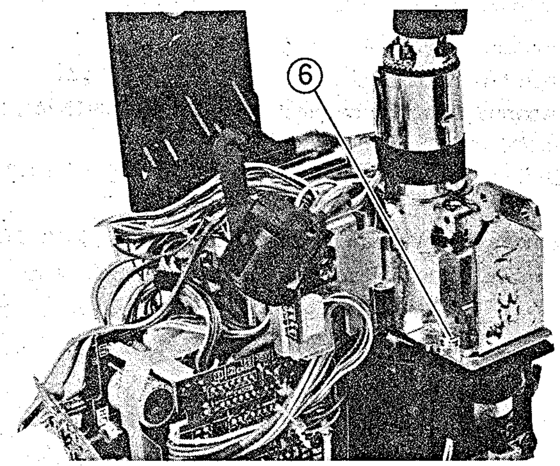


Fig. 2-125 Lens Block Removal

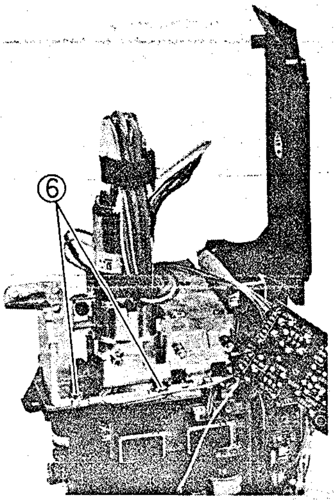


Fig. 2-126 Lens Block Removal

Auto Focus Circuit Board Removal
(Figs. 2-127, 2-128, 2-129)

1. Remove the lens block as previously given.
2. Unsolder two (2) points and remove the auto focus circuit board shield cover. (See Fig. 2-127)
3. Remove two (2) screws holding the auto focus circuit board. (See Fig. 2-128)
4. Open the auto focus circuit board.
5. Disconnect four (4) connectors (CN1, CN2, CN3, CN4). (See Fig. 2-129)

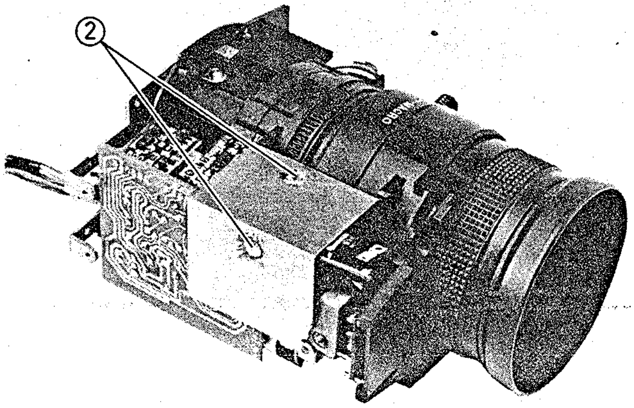


Fig. 2-127 Auto Focus Circuit Board Removal

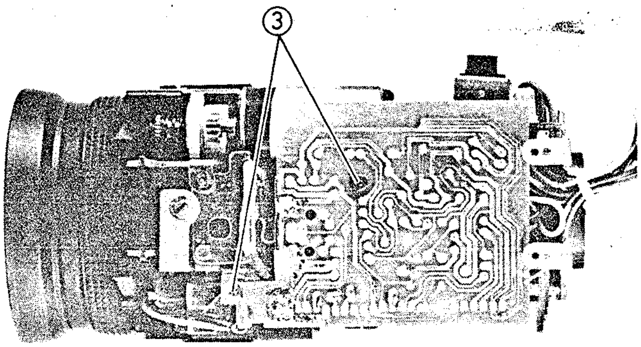


Fig. 2-128 Auto Focus Circuit Board Removal

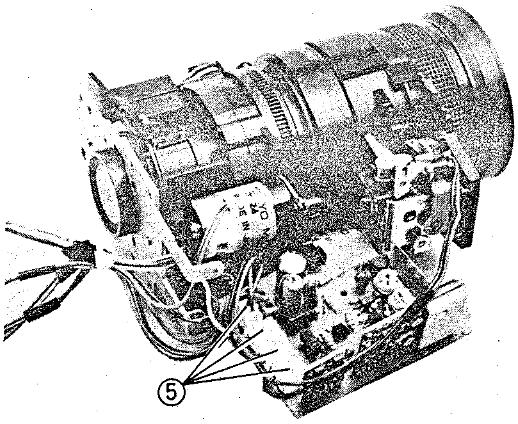


Fig. 2-129 Auto Focus Circuit Board Removal

Focus Switch Circuit Board Removal (Fig. 2-130)

1. Remove the lens block as previously given.
2. Disconnect connector CN4. (See Fig. 2-130)
3. Remove three (3) screws holding the focus switch circuit board.

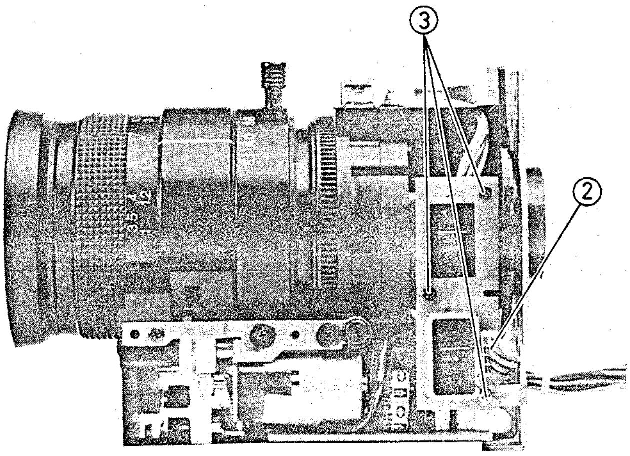


Fig. 2-130 Focus Switch Circuit Board Removal

Iris Block Removal (Figs. 2-131, 2-132)

1. Remove the lens block as previously given.
2. Remove the auto focus circuit board. (See Figs. 2-127, 2-128, 2-129)
3. Remove the focus switch circuit board. (See Fig. 2-130)
4. Remove four (4) screws holding the relay lens block, and remove it. (See Fig. 2-131)
5. Remove three (3) screws holding the iris block, and remove it. (See Fig. 2-132)

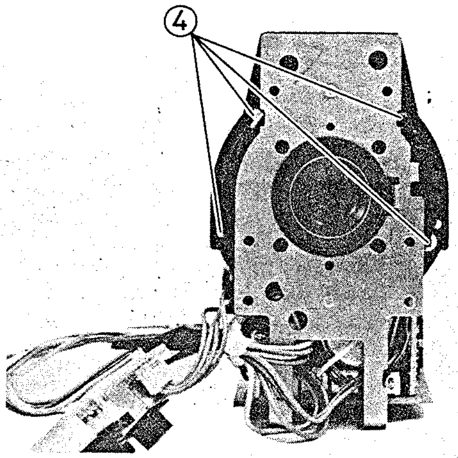


Fig. 2-131 Iris Block Removal

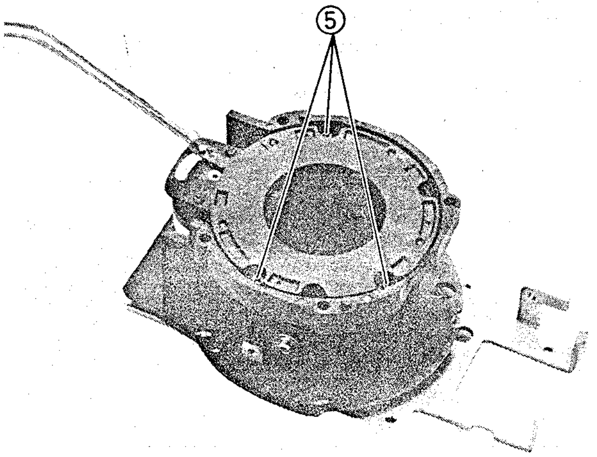


Fig. 2-132 Iris Block Removal

Zoom Motor Removal (Fig. 2-133)

1. Remove the lens block as previously given.
2. Open the auto focus circuit board. (See Fig. 2-128)
3. Remove two (2) screws holding the zoom motor. (See Fig. 2-133)

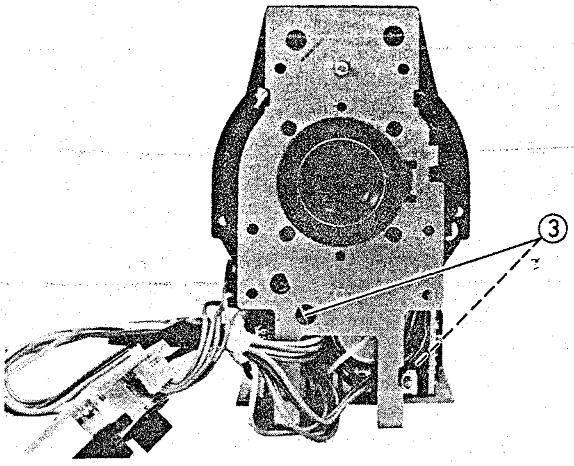


Fig. 2-133 Zoom Motor Removal

Auto Focus Motor Removal (Figs. 2-134, 2-135)

1. Remove the lens block as previously given.
2. Open the auto focus circuit board. (See Fig. 2-128)
3. Disconnect connector CN2. (See Fig. 2-134)
4. Remove two (2) screws holding the auto focus motor. (See Fig. 2-135)

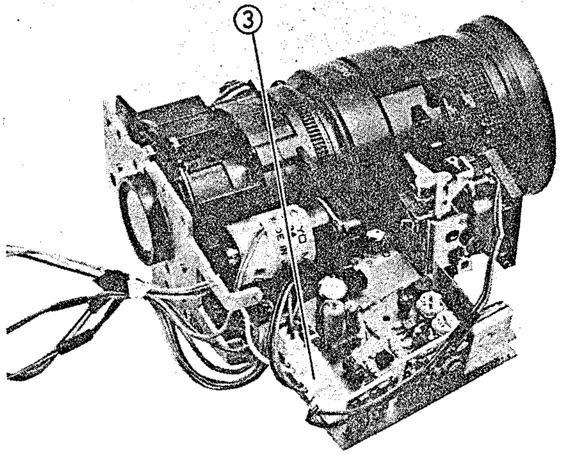


Fig. 2-134 Auto Focus Motor Removal

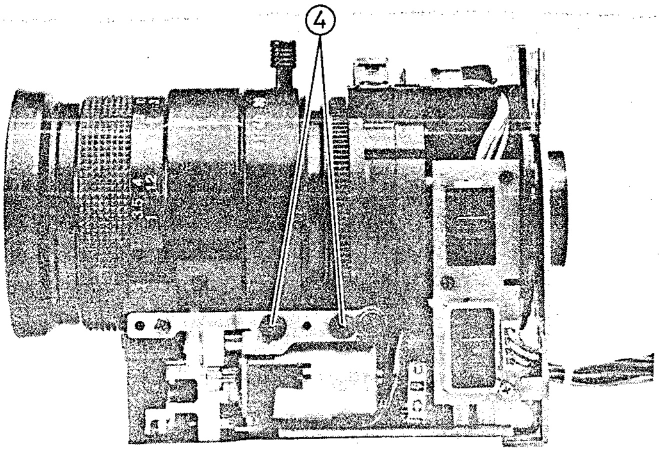


Fig. 2-135 Auto Focus Motor Removal

ELECTRONIC VIEWFINDER (EVF)

Remove the electronic viewfinder (EVF) as previously given.

Bottom Cover Removal (Fig. 2-138)

1. Turn the microphone ring in the direction of the arrow. (See Fig. 2-138)
2. Remove five (5) screws holding the bottom cover.

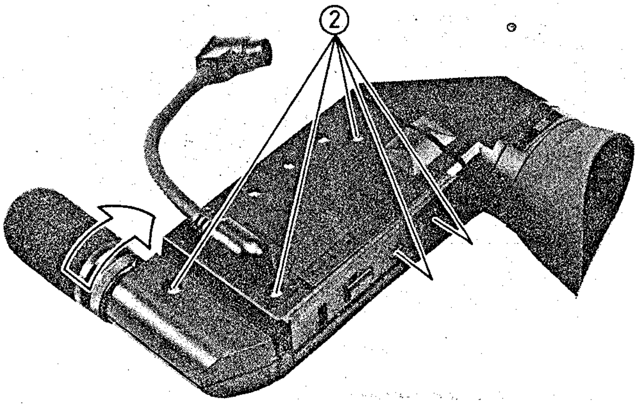


Fig. 2-138 Bottom Cover Removal

Electronic Viewfinder (EVF) Circuit Board Removal (Figs. 2-139, 2-140)

1. Remove the bottom cover. (See Fig. 2-138)
2. Pull out the electronic viewfinder (EVF) circuit board, CRT and mic jack circuit board in the direction of the arrow. (See Fig. 2-139)
3. Disconnect two (2) connectors (CN822, CN003). (See Fig. 2-140)

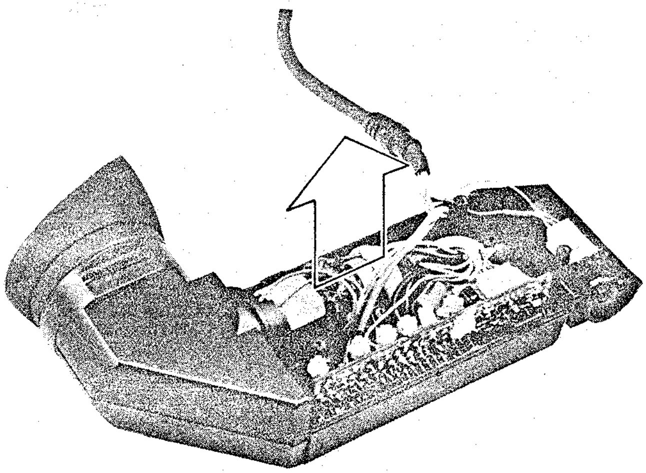


Fig. 2-139 Electronic Viewfinder (EVF) Circuit Board

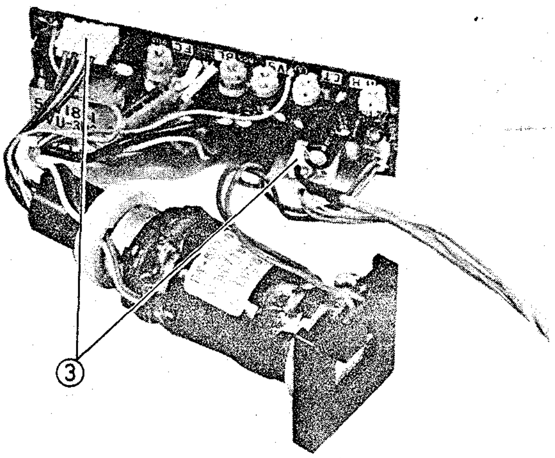


Fig. 2-140 Electronic Viewfinder (EVF) Circuit Board Removal

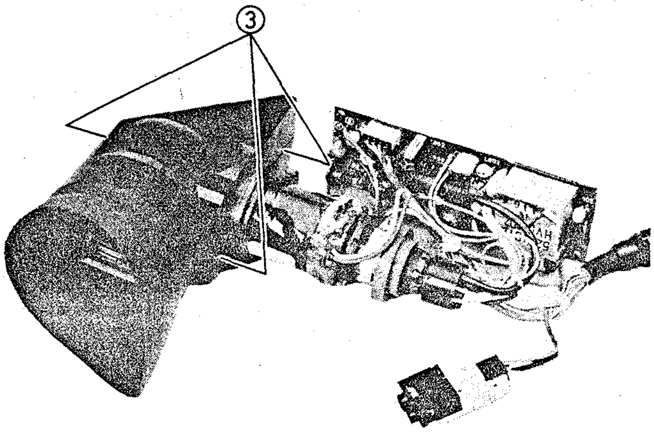


Fig. 2-142 CRT Removal

Mic Jack Circuit Board Removal (Fig. 2-141)

1. Remove the bottom cover. (See Fig. 2-138)
2. Disconnect connector CN023. (See Fig. 2-141)

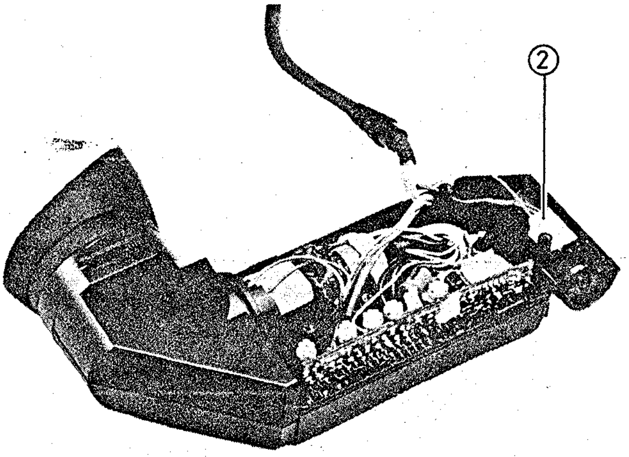


Fig. 2-141 Mic Jack Circuit Board Removal

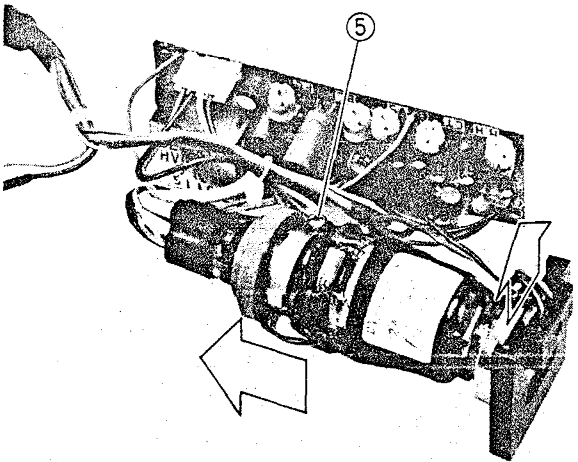


Fig. 2-143 CRT Removal

CRT Removal (Figs. 2-142, 2-143)

1. Remove the bottom cover. (See Fig. 2-138)
2. Remove the EVF circuit board. (See Figs. 2-139, 2-140)
3. Press the CRT top cover to release the locking tabs and CRT top cover. (See Fig. 2-142)
4. Remove one (1) screw holding the deflection coil. (See Fig. 2-143)
5. Remove the deflection coil in the direction of the arrow.
6. Remove the CRT frame in the direction of the arrow.

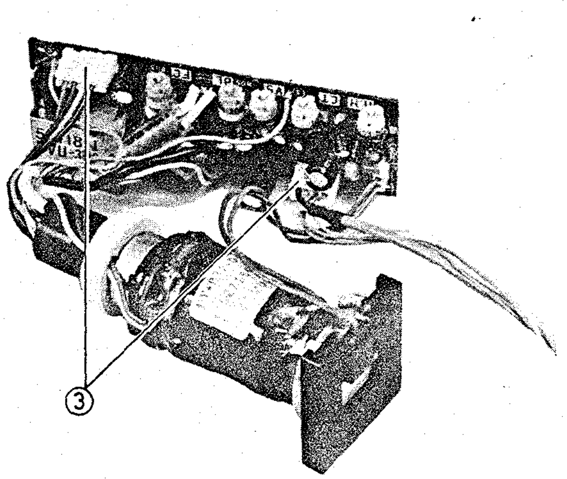


Fig. 2-140 Electronic Viewfinder (EVF) Circuit Board Removal

Mic Jack Circuit Board Removal (Fig. 2-141)

1. Remove the bottom cover. (See Fig. 2-138)
2. Disconnect connector CN023. (See Fig. 2-141)

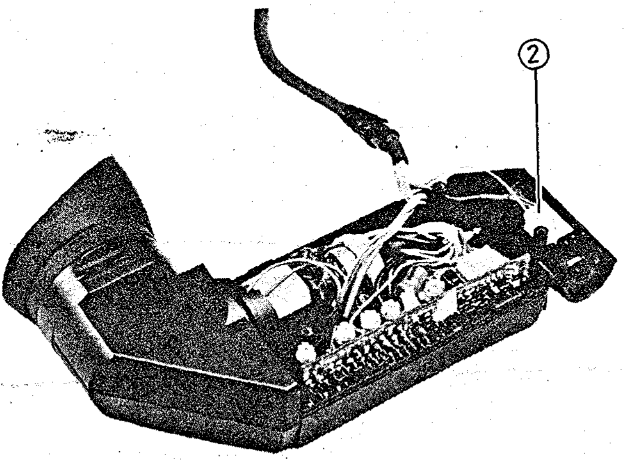


Fig. 2-141 Mic Jack Circuit Board Removal

CRT Removal (Figs. 2-142, 2-143)

1. Remove the bottom cover. (See Fig. 2-138)
2. Remove the EVF circuit board. (See Figs. 2-139, 2-140)
3. Press the CRT top cover to release the locking tabs and CRT top cover. (See Fig. 2-142)
4. Remove one (1) screw holding the deflection coil. (See Fig. 2-143)
5. Remove the deflection coil in the direction of the arrow.
6. Remove the CRT frame in the direction of the arrow.

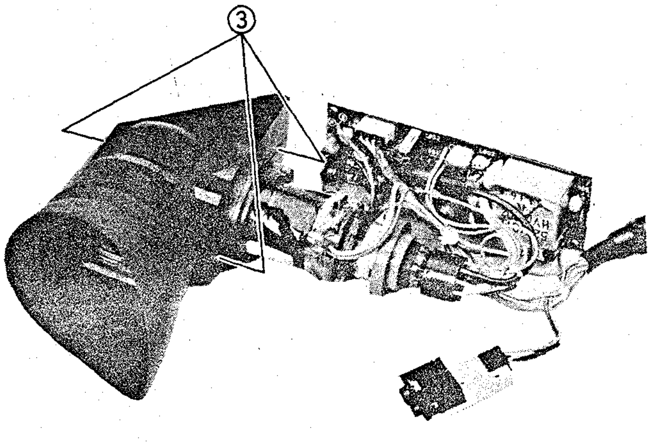


Fig. 2-142 CRT Removal

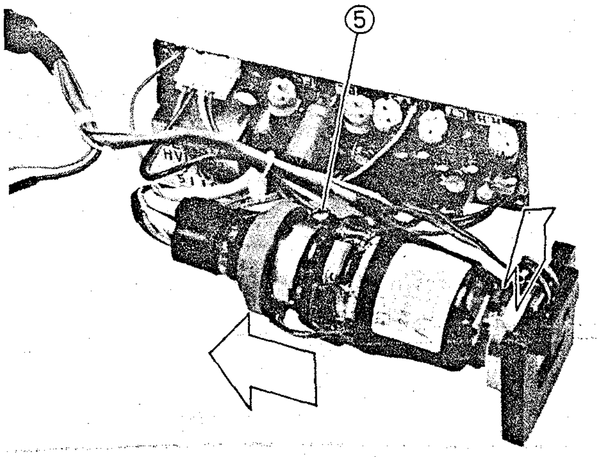


Fig. 2-143 CRT Removal

(K) Bundle the wires of CN1005 and CN1525 with a bead band.

(L) Pass the wires of CN1501, CN1005, CN1607, CN1011, CN1012 and CN1013 under the heat sink of the 8V regulator circuit board.

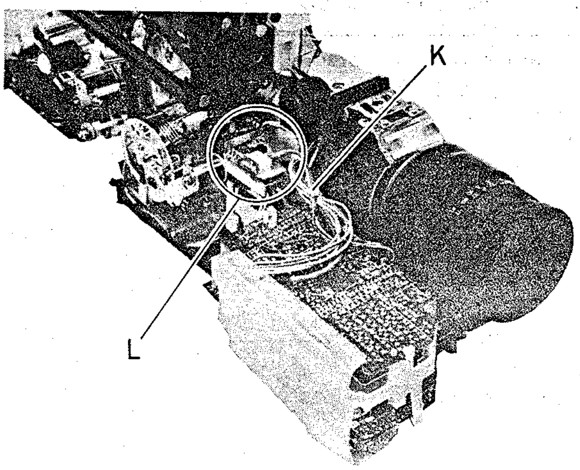


Fig. 2-204

(M) Fix the wires of CN1012 and CN1013 and the capacitor for the Saticon using cloth tape at the positions shown in Fig. 2-205.

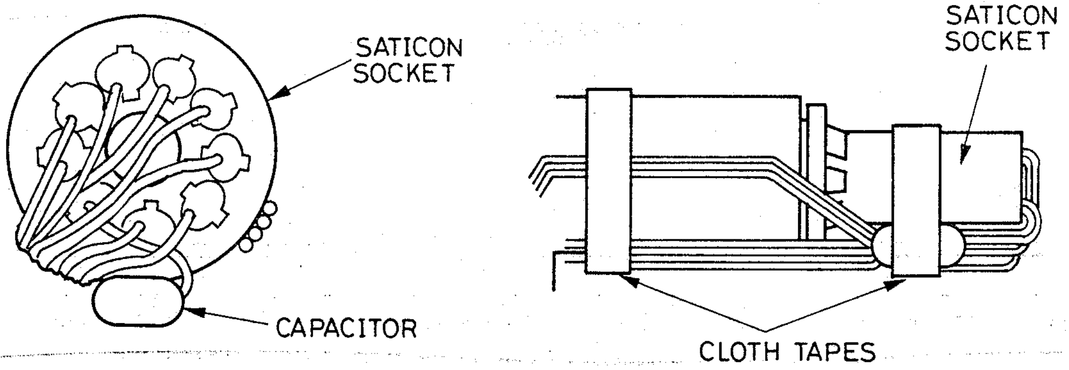
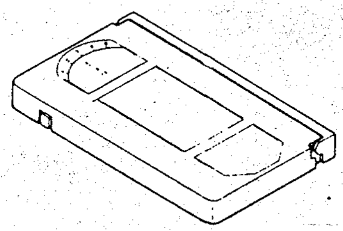

SATICON SOCKET
CAPACITOR
SATICON SOCKET
CLOTH TAPES

Fig. 2-205

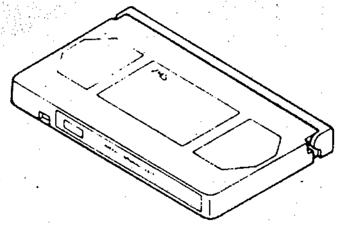
ADJUSTMENT

SERVICING JIGS AND TOOLS

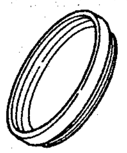
1. Back Tension Meter
Parts No. 7099004



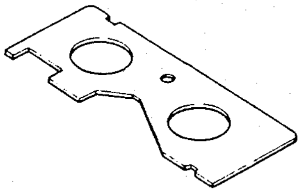
2. Alignment Tape
Parts No. 7099052



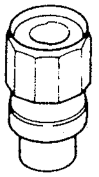
3. Light Balancing Filter
Parts No. 7099207



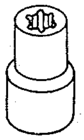
4. Master Plane
Parts No. 7099041



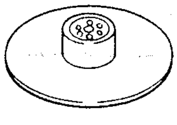
5. Torque Gauge
Parts No. 7099039



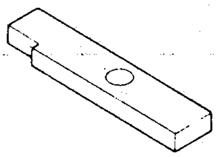
6. Torque Gauge Adapter
Parts No. 7099204



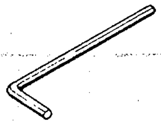
7. Dummy Reel
Parts No. 7099043



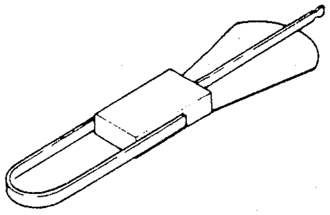
8. Reel Disk Height Jig
Parts No. 7099038



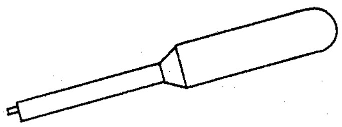
9. 0.9 mm Hexagonal Wrench



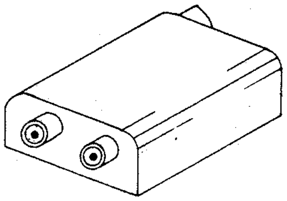
10. Fan Type Tension Gauge



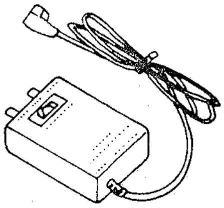
11. Back Focus Adjustment Driver
Parts No. 7099205



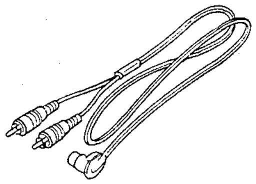
12. AV Input Adapter
VM-CH20E



13. RF Converter Unit
VM-RF20E
VM-RF20E(AU)



14. AV Output Cable
VM-CH25E

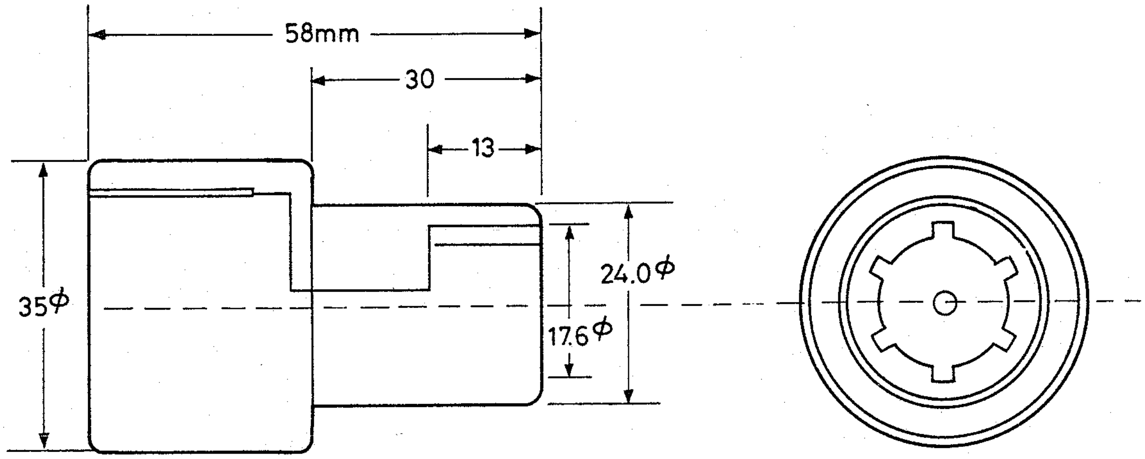


Service Parts

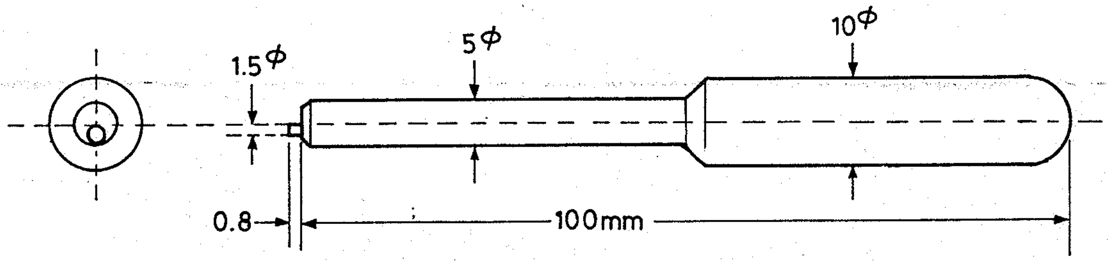
No.	MODEL	PARTS No.
12	VM-CH20E	5659991
13	VM-RF20E	7095221
	„ (AU)	7095201
14	VM-CH25E	5855332

NEW SERVICE JIG AND TOOLS SPECIFICATIONS

PARTS NO.	DESCRIPTION	MODEL
7099204	TORQUE GAUGE ADAPTOR	VM-200E


58mm
30
13
35Φ
24.0Φ
17.6Φ

PARTS NO.	DESCRIPTION	MODEL
7099205	BACKFOCUS ADJUSTMENT DRIVER	VM-200E


1.5Φ
5Φ
10Φ
0.8
100mm

MECHANICAL ADJUSTMENT

1. MECHANISM STATE SWITCH ADJUSTMENT

Loading Cam Gear (Supply/Take-up) Adjustment (Fig. 3-1)

Be sure to perform this adjustment after replacing the Loading Cam Gear (Supply/Take-up), before adjusting the Mechanism State Switch.

1. Check that marking (1) on the supply loading cam gear and the marking on the take-up loading cam gear aligned. If they are not aligned, reassemble the loading cam gears.

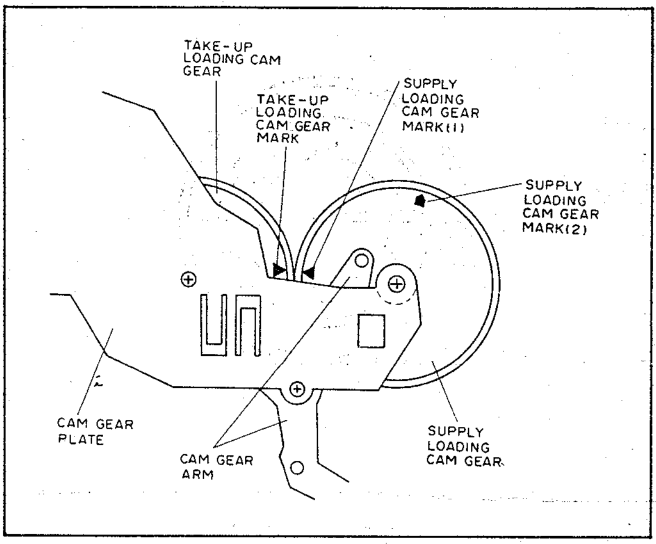

TAKE-UP LOADING CAM GEAR
TAKE-UP LOADING CAM GEAR MARK
SUPPLY LOADING CAM GEAR MARK(1)
SUPPLY LOADING CAM GEAR MARK(2)
CAM GEAR PLATE
CAM GEAR ARM
SUPPLY LOADING CAM GEAR

Fig. 3-1 Loading Cam Gear (Supply/Take-up) Adjustment

Mechanism State Switch Adjustment (Fig. 3-2)

Be sure to perform this adjustment after replacing the mechanism state switch and loading cam gears (supply/take-up).

1. Assemble the mechanism state switch and cam gear T so marking (1) on the mechanism state switch and marking (1) on cam gear T are aligned. (See Fig. 3-2(A))
2. Turn cam gear T in the direction of the arrow so that marking (1) on the mechanism state switch and marking (1) on the switch holder are aligned. (See Fig. 3-2 (B))
3. Check that the loading cam gear adjustment is performed correctly.
4. Assembly the mechanism state switch holder into the chassis so that marking (2) on cam gear T and marking (2) on the supply loading cam gear are aligned.
   Check that marking (2) on the mechanism state switch and marking (2) on the switch holder are aligned at this time. (See Fig. 3-2 (C)) If they are not aligned, readjust the mechanism state switch.

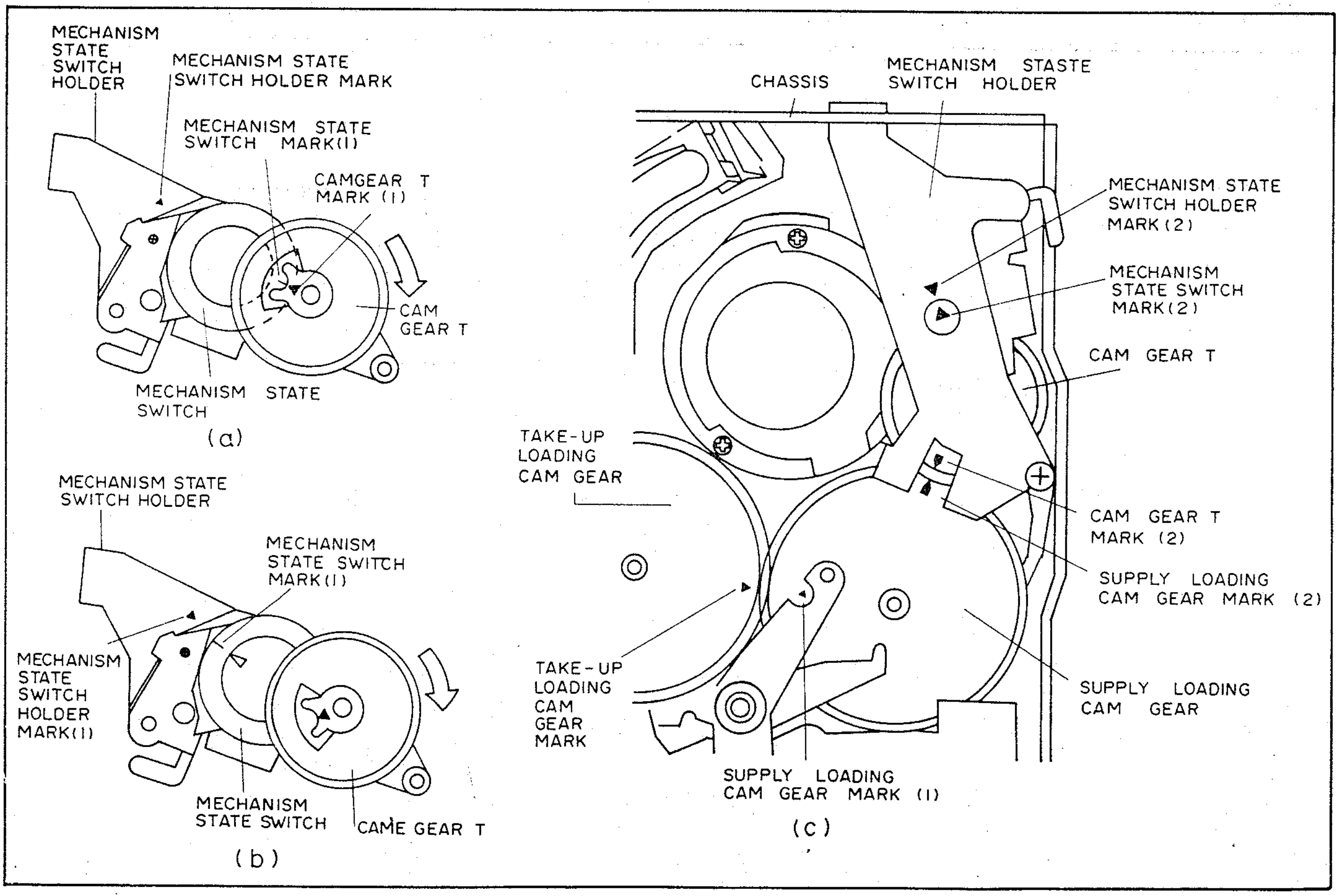

MECHANISM STATE SWITCH HOLDER
MECHANISM STATE SWITCH HOLDER MARK
MECHANISM STATE SWITCH MARK(1)
CAMGEAR T MARK (1)
CAM GEAR T
MECHANISM STATE SWITCH
(a)
MECHANISM STATE SWITCH HOLDER
MECHANISM STATE SWITCH MARK(1)
MECHANISM STATE SWITCH HOLDER MARK(1)
MECHANISM STATE SWITCH
CAME GEAR T
(b)
CHASSIS
MECHANISM STASTE SWITCH HOLDER
MECHANISM STATE SWITCH HOLDER MARK(2)
MECHANISM STATE SWITCH MARK(2)
CAM GEAR T
TAKE-UP LOADING CAM GEAR
CAM GEAR T MARK (2)
SUPPLY LOADING CAM GEAR MARK (2)
TAKE-UP LOADING CAM GEAR MARK
SUPPLY LOADING CAM GEAR
SUPPLY LOADING CAM GEAR MARK (1)
(c)

Fig. 3-2 Mechanism State Switch Adjustment

2. TAPE TRANSPORT SYSTEM COMPONENTS CHECK/ADJUSTMENT

The tape transport system is the part from the supply reel to the take-up reel via the video head.
The tape transport components, especially the components which came into direct contact which the tape should be kept clean without damage, dust and oil, etc. adhering to the contact surfaces. The tape transport system is adjusted before shipment from the factory, so when any transport components are replaced, the transport system is stabilized by correctly adjusting the new components.

Reel Disk Height Adjustment (Fig. 3-3)

1. Remove the cassette lid, left case and mount the master plane.
2. Place a reel disk height jig on the master plane and fit it to the reel disk.
3. Check that the top of the reel disk is positioned between section A and B of the reel disk height jig.
4. When the top of the reel disk is positioned between section A and B, adjust the number of the spacers (3 types: 0.13 mm, 0.25 mm and 0.5 mm in thick) at the bottom of the reel disk.

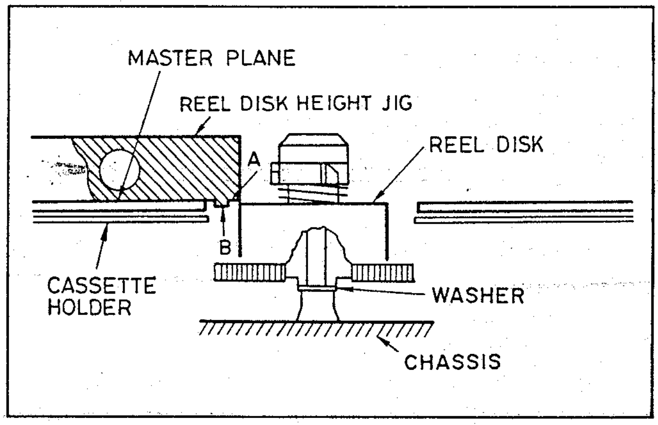

MASTER PLANE
REEL DISK HEIGHT JIG
A
REEL DISK
B
CASSETTE HOLDER
WASHER
CHASSIS

Fig. 3-3 Reel Disk Height Adjustment

Tension Pole Position/Tension Adjustment

Position Adjustment (Fig. 3-4)

1. Set the tension spring to position "B" on the spring holder.
2. Cover up the supply tape-sensor photocell located midway on the left side of the tape mechanism.
3. Place instrument in the "play" mode.
4. After loading is complete, loosen the screw holding the tension band holder. Then, slide the holder and adjust so that the clearance between section A of the supply end sensor holder and the tension arm is 0.6 to 1.2mm.
5. Tighten screw to secure adjustment.

Tension Adjustment (Fig. 3-4)

1. Load the instrument with the back tension adjustment tape.
2. Place the instrument in the "play" mode.
3. Read the scale on the supply reel.
4. This reading should be between 27 and 38.
5. Move the tension arem spring to the position "A" on the spring holder when the tension adjustment tape reads 39 or higher, and to the position "C" on the spring holder when it is 26 or lower, and adjust the back tension for a nominal reading of 27-38 on the scale.
6. Recheck the tension arm position when the back tension is changed greatly (5 or more).

Note: The instrument must be in a horizontal position for this adjustment.

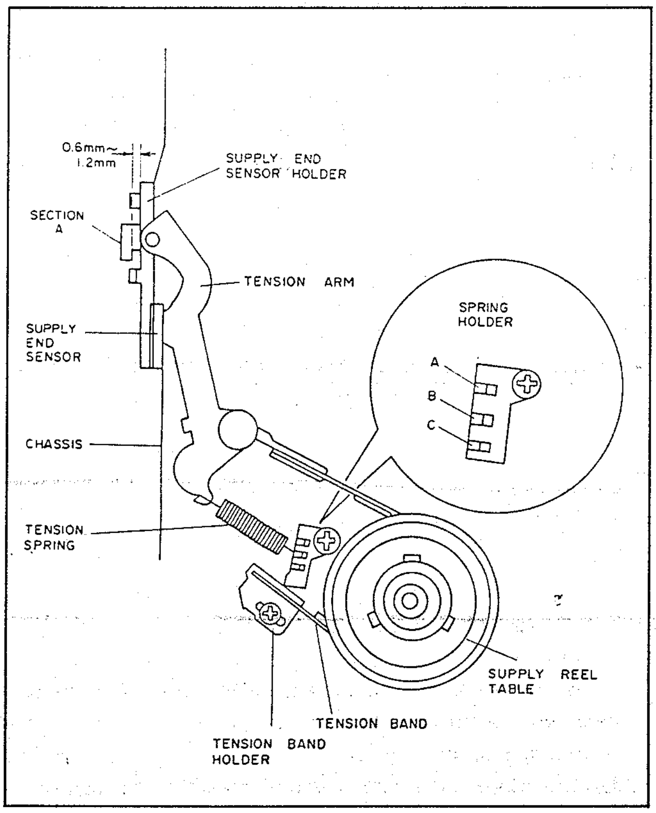

0.6mm~
1.2mm
SUPPLY END SENSOR HOLDER
SECTION A
TENSION ARM
SPRING HOLDER
A
B
C
SUPPLY END SENSOR
CHASSIS
TENSION SPRING
SUPPLY REEL TABLE
TENSION BAND
TENSION BAND HOLDER

Fig. 3-4 Tension Pole Position/Tention Adjustment

Impedance Roller Height Adjustment (Fig. 3-5)

1. Remove the cassette lid, left case and mount the master plane.
2. Place a reel disk height jig on the master plane and fit it to the impedance roller.
3. Turn the impedance roller height adjusting nut so that the gap between the top of the impedance roller and the top of the jig is 1.5mm to 2.5mm.
4. Load a blank tape, run it and check that the tape does not ride over the upper and lower edge of the roller.

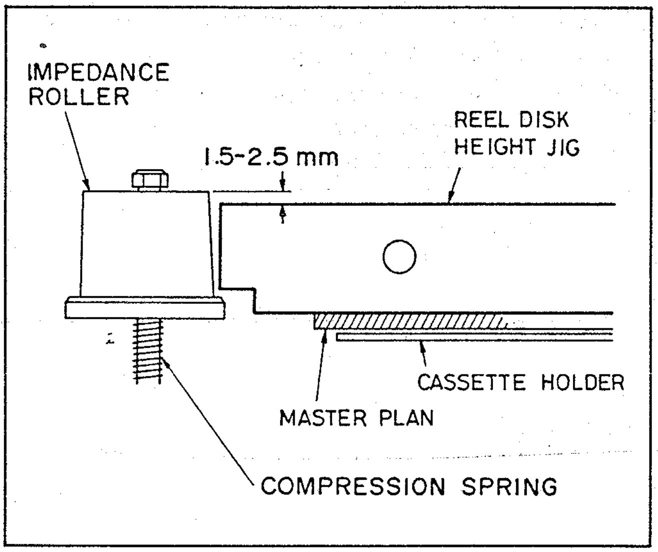


Fig. 3-5 Impedance Roller Height Adjustment

Guide Pole Height Adjustment (Fig. 3-6)

1. Remove the cassette lid, left case and mount the master plane.
2. Place a reel disk height jig on the master plane and fit it to the guide pole.
3. Turn the guide pole height adjusting nut so that the gap between the upper flange of the guide pole and the top of the jig is 0.1mm ± 0.1mm.
4. Load a blank tape, run it and check that the tape does not ride over the upper and lower flanges of the pole.

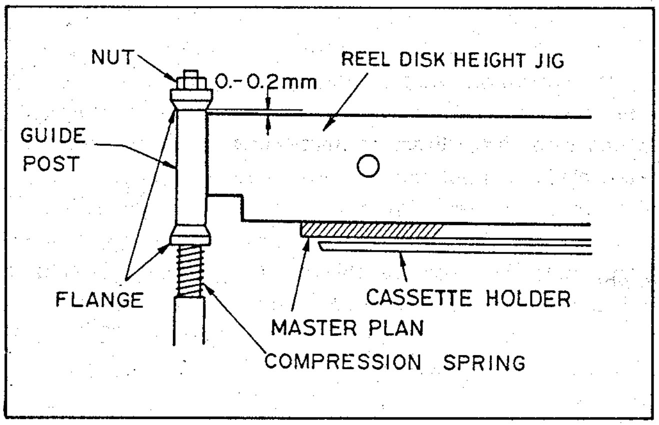


Fig. 3-6 Guide Pole Height Adjustment

Guide Roller Height Adjustment (Figs. 3-7, 3-8)

1. Remove the cassette lid, left case and mount the master plane.
2. Place a reel disk height jig on the master plane and fit it to the guide Roller.
3. Tighten the guide roller fixing screw at the position when the upper flange of the guide roller and the top of the jig match.
4. Run the tape and check that the tape does not curl and ride over, and then perform the electrical adjustment.
5. Connect the oscilloscope to TP204 on the main board.
6. Playback the colour bar test tape and set the tracking control to the click position.
7. Check that the FM waveform is flat.
8. Then check that the FM drops at the start and end of the envelope are equal when the tracking control is turned to the left and right.
9. When the FM drops at the start and of the envelope are not equal, loosen the guide roller fixing screw, turn the guide roller a little to the left and right so that they are equal.
10. Tighten the fixing screw.

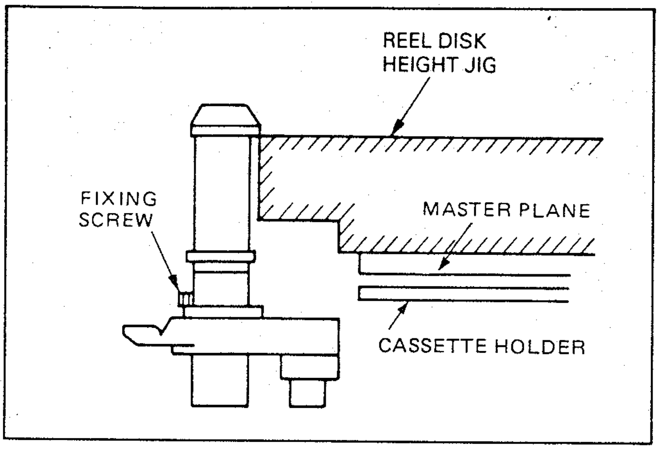

REEL DISK
HEIGHT JIG
FIXING
SCREW
MASTER PLANE
CASSETTE HOLDER

Fig. 3-7 Guide Roller Height Adjustment

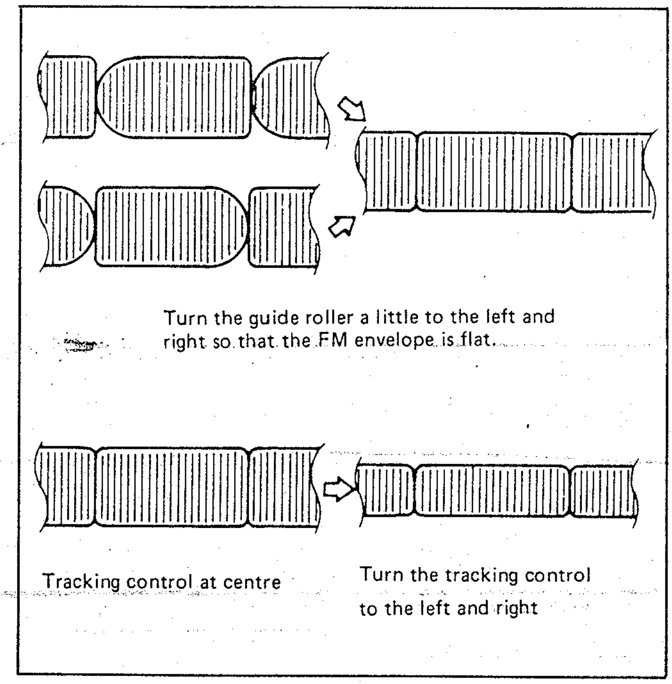

Turn the guide roller a little to the left and right so that the FM envelope is flat.
Tracking control at centre
Turn the tracking control to the left and right

Fig. 3-8 Guide Roller Height Adjustment

A/C Head Adjustment (Figs. 3-9, 3-10, 3-11, 3-12)

Perform the height, tilt and azimuth adjustments repeatedly to determine the A/C head installation position, then adjust X value.

Detailed adjustment below is the procedure when the A/C head is replaced; be sure to do precise adjustment after rough adjustment.

Rough adjustment

1. Remove the cassette lid and left case before making adjustment.
2. Check that it is 2.5 – 3 mm between the top of Nut (A) and point of the shaft. If it is not, adjust Nut (A).
3. Install the height reference plate in its proper position.
4. Adjust azimuth Screw (B), Tilt Screw (C) and Screw (F) so the height difference between the height reference plate and A/C head base (1) is 1 – 2 mm and A/C head bases (1) and (2) are parallel.

Precise adjustment

5. Connect the oscilloscope to PG903-6 on the main board.
6. Playback a 6-kHz audio signal on alignment tape.
7. Adjust azimuth screw (B) and tilt screw (C) for maximum output.

X-value adjustment

8. Connect the oscilloscope to TP204 on the main board.
9. Trigger the oscilloscope at SW30Hz. (Use TP205 on the main board)
10. Set the Tracking control (RV101) to the detent (fixed) position.
11. Loosen two (2) screws (D and E).
12. Playback a alignment tape.
13. Carefully move the A/C head base plate in either direction for maximum head envelope output by adjusting the X-value adjust point.
14. Lock two (2) screws (D and E) with paint.

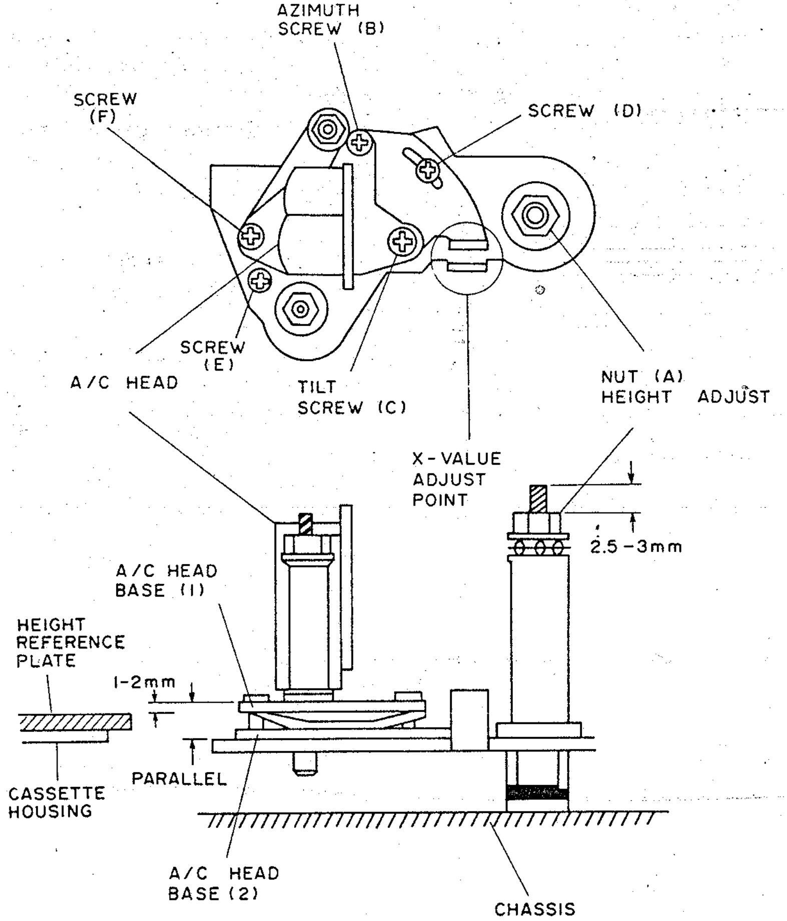

AZIMUTH SCREW (B)
SCREW (F)
SCREW (D)
SCREW (E)
A/C HEAD
TILT SCREW (C)
NUT (A) HEIGHT ADJUST
X-VALUE ADJUST POINT
2.5-3mm
A/C HEAD BASE (1)
HEIGHT REFERENCE PLATE
1-2mm
PARALLEL
CASSETTE HOUSING
A/C HEAD BASE (2)
CHASSIS

Fig. 3-9 A/C Head Adjustment

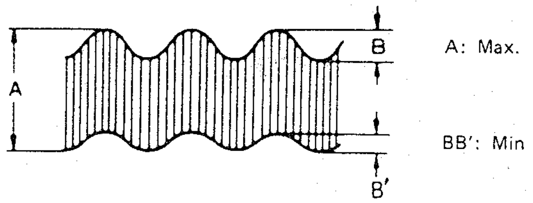

A
B
B'
A: Max.
BB': Min

Fig. 3-10 A/C Head Adjustment

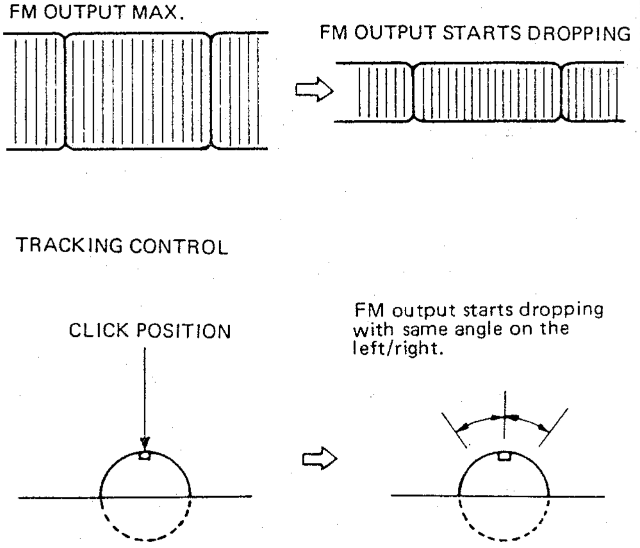

FM OUTPUT MAX.
FM OUTPUT STARTS DROPPING
TRACKING CONTROL
CLICK POSITION
FM output starts dropping with same angle on the left/right.

Fig. 3-12 A/C Head Adjustment

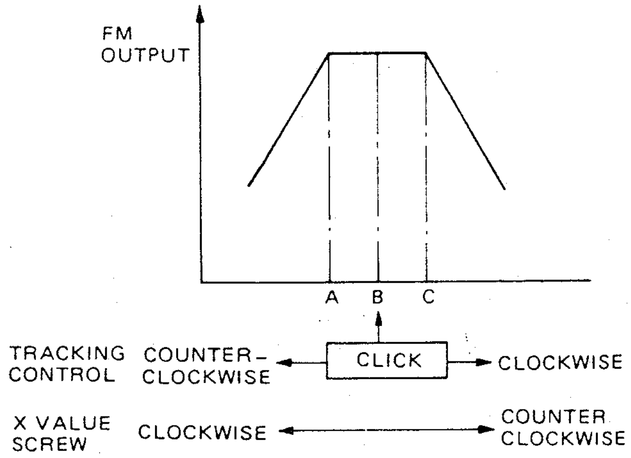


Fig. 3-11 A/C Head Adjustment

Adjustment After Replacing Cylinder (Video Head)

When the cylinder is repalced, the relative height between the cylinder and guide roller and the X value, etc. drift, so adjustments of the tape transport system and servo system are required.
However, the drifts in the relative height and X value are very little when the cylinder is replaced normally, so that can be corrected by electrical adjustments.

1. Check the no curl crease occurs around the guide roller. Adjust the guide roller height when they occur.
2. Perform tracking preset adjustments (Servo section).
3. Adjust the X value (described in "A/C Head Adjustment").
4. Check the flatness and level fluctuations of the FM output. The checking method is described later.
5. Adjust the servo section and Y/Chroma section.
    - Head Switching Point Adjustment
    - Tracking Preset Adjustment
    - Record Luminance Level Adjustment
    - Record Chroma Level Adjustment

Check Flatness and Level Fluctuations of the FM Output

1. Set the tracking control to the click position.
2. Fine adjust the voltage level range of the oscilloscope and set the FM output to 4 graduations.
3. Turn the tracking control to set the maximum amplitude of the FM output to 3 graduations.
4. Check that the minimum amplitude is more than 2 graduations.
5. Check that the level difference between the maximum and minimum amplitudes is less than 13%.

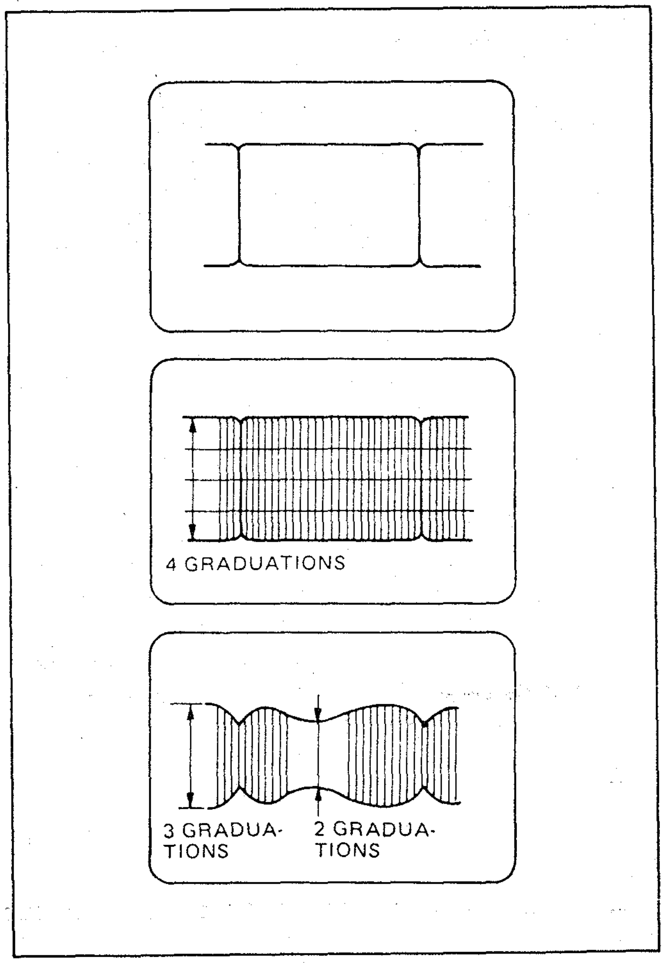


Fig. 3-13

3. TENSION AND TORQUE CHECKS

It is necessary to chack the tension, torque and compression strength in the tape take-up section and moving section to smoothen the tape transport and to satisfy the basic performance of the VTR. When the tape transport is not smooth or the tape speed is abnormal detect the faulty section by this checking, and then check again after replacing the faulty parts with normal ones to complete the work.

Item	VTR Operation Mode	Measured Reel	Measurement Value	Remarks
Main brake torque	STOP	Supply	100g. cm ~	Note 1
		Take-up	80g.cm ~	
Slack removal torque	UNLOADING	Supply	90 ~ 200g.cm	Note 1
Fast forward torque	F. FWD	Take-up	400g.cm ~	Note 1
Rewind torque	REW	Supply	400g.cm ~	Note 1
Take-up torque	PLAY	Take-up	80 ~ 100g.cm	Note 1
Back-tension torque	F. FWD	Supply	4 ~ 10g.cm	Note 2
	REW	Take-up		

Note 1: This is the value measured using the torque gauge and torque adapter while sliding the torque gauge at the speed of 0.8 rps. However, the main brake torque shows the value measured while moving the take-up reel clockwise and the supply reel counterclockwise by hand at the speed of 0.8 rps.

Note 2: This the value measured using the dummy reel and fan type tension gauge while drawing the take-up reel disk counterclockwise and the supply reel disk clockwise at the speed of 50mm/s.

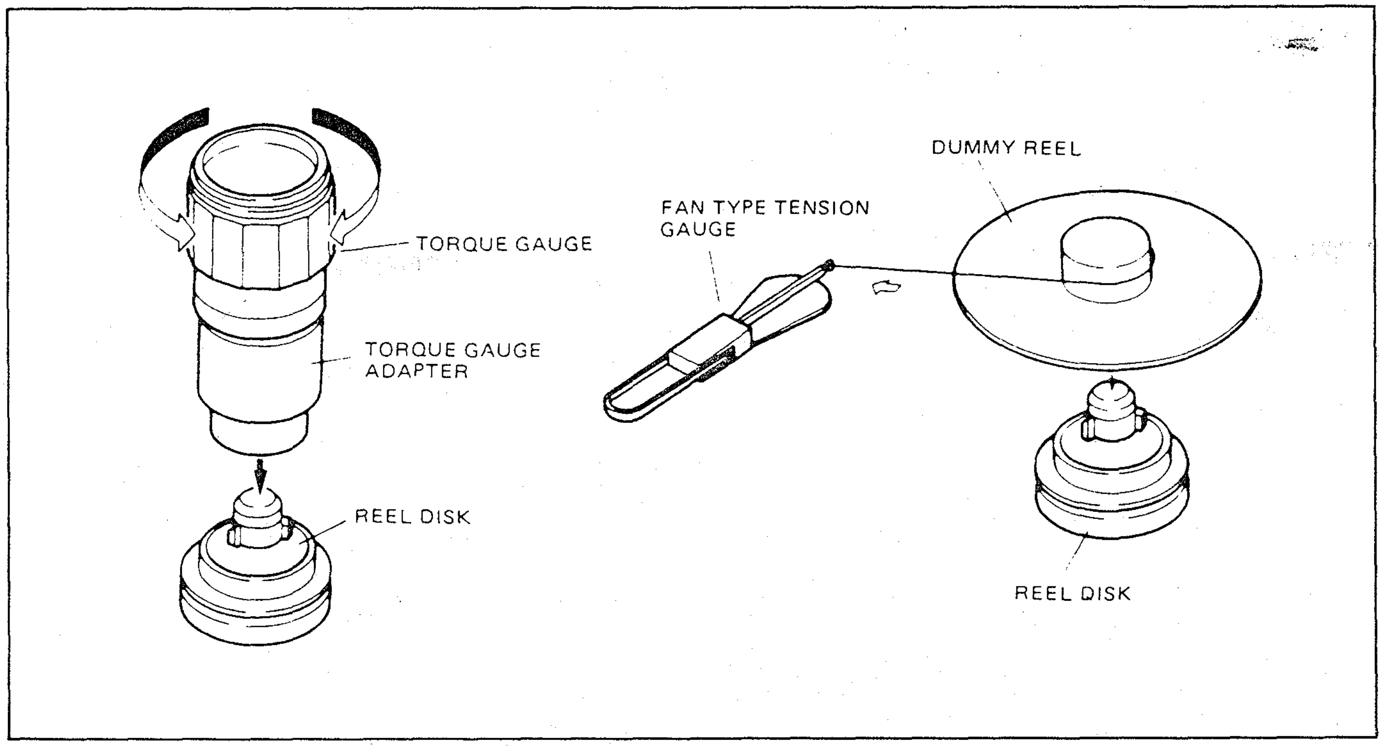


Fig. 3-14

ELECTRICAL ADJUSTMENT

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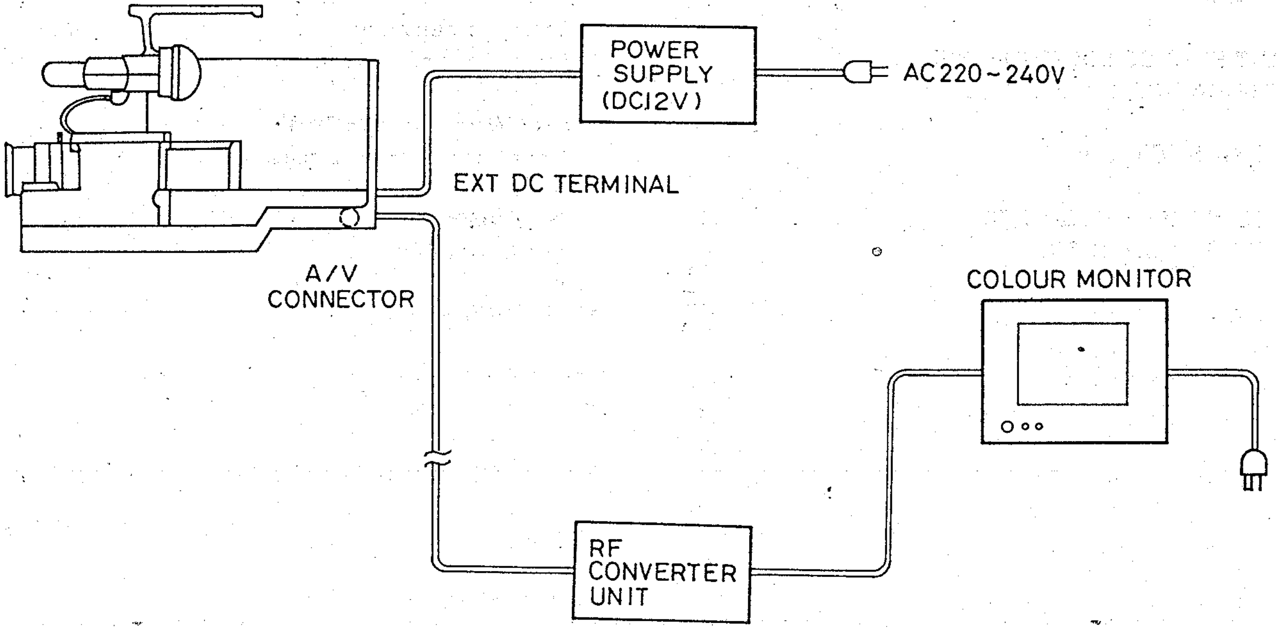

POWER
SUPPLY
(DC12V)
AC220~240V
EXT DC TERMINAL
A/V
CONNECTOR
COLOUR MONITOR
RF
CONVERTER
UNIT

Fig. 4-1 Correct Setup Adjustment

CIRCUIT BOARDS LOCATION AND IDENTIFICATION

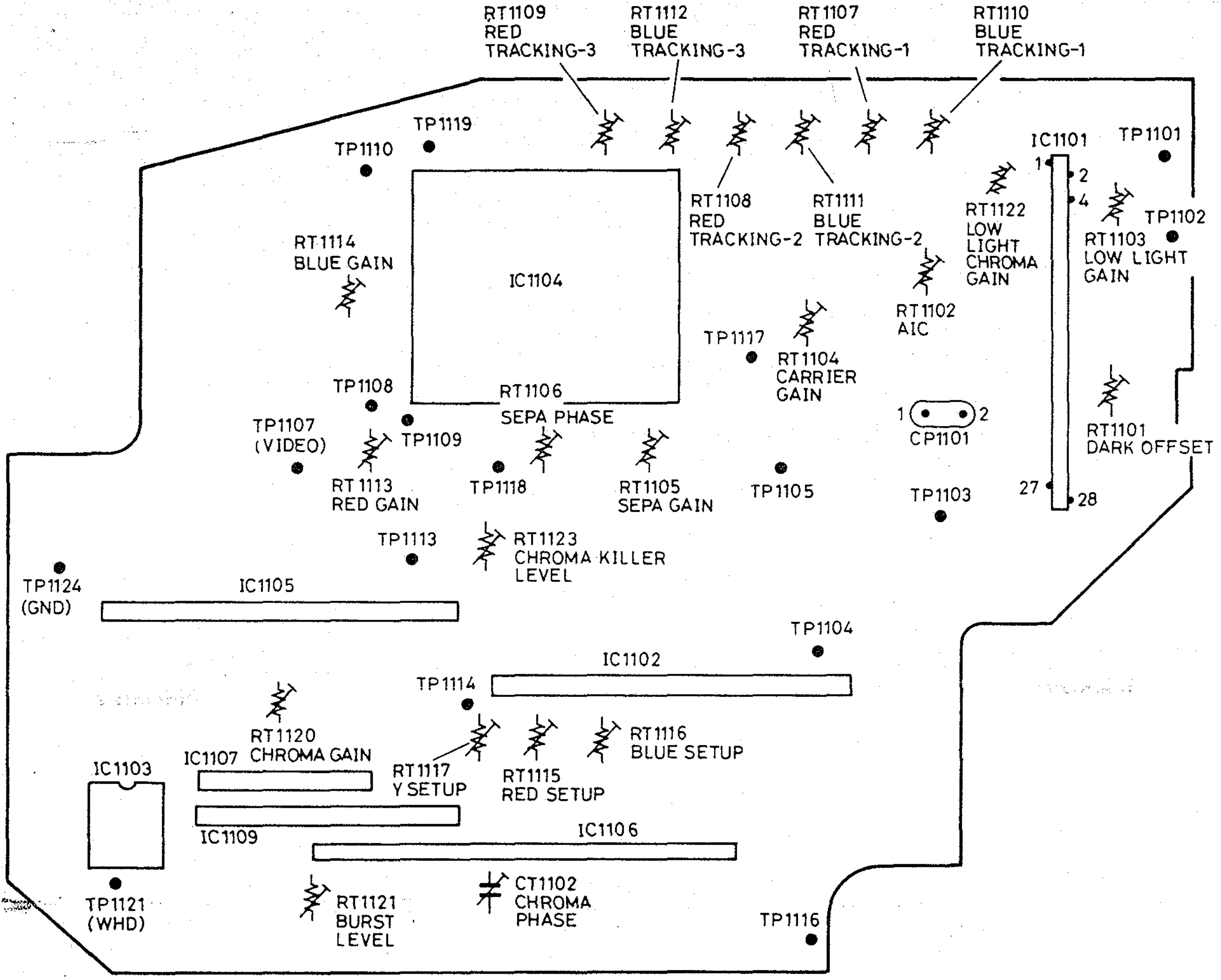

RT1109
RED
TRACKING-3
RT1112
BLUE
TRACKING-3
RT1107
RED
TRACKING-1
RT1110
BLUE
TRACKING-1
TP1119
TP1110
IC1101
TP1101
1
2
4
RT1108
RED
TRACKING-2
RT1111
BLUE
TRACKING-2
RT1122
LOW
LIGHT
CHROMA
GAIN
TP1102
RT1103
LOW LIGHT
GAIN
RT1114
BLUE GAIN
IC1104
RT1102
AIC
TP1117
RT1104
CARRIER
GAIN
TP1108
RT1106
SEPA PHASE
CP1101
1
2
RT1101
DARK OFFSET
TP1107
(VIDEO)
TP1109
RT1113
RED GAIN
TP1118
RT1105
SEPA GAIN
TP1105
TP1103
27
28
TP1113
RT1123
CHROMA KILLER
LEVEL
TP1124
(GND)
IC1105
TP1104
IC1102
TP1114
RT1120
CHROMA GAIN
IC1107
RT1116
BLUE SETUP
IC1103
RT1117
Y SETUP
RT1115
RED SETUP
IC1109
IC1106
TP1121
(WHD)
RT1121
BURST
LEVEL
CT1102
CHROMA
PHASE
TP1116

Fig. 4-2 Process Circuit Board (Component Side)

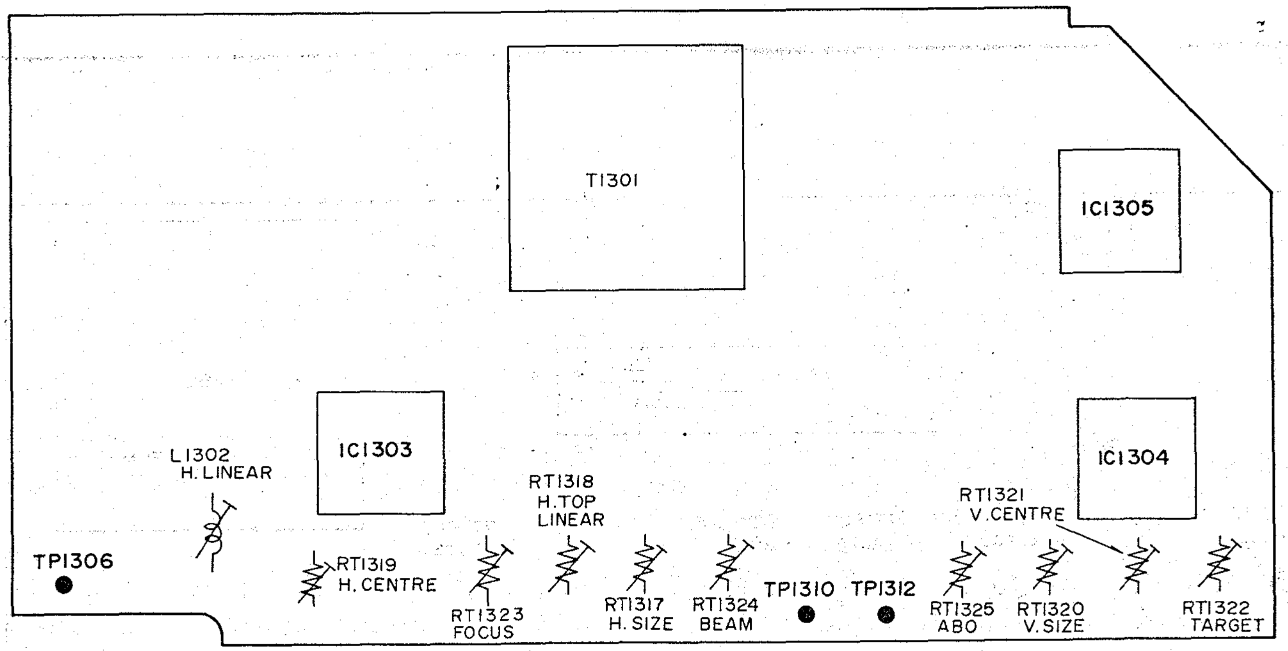

T1301
IC1305
IC1303
IC1304
L1302
H. LINEAR
RT1318
H.TOP
LINEAR
RT1321
V.CENTRE
TP1306
RT1319
H. CENTRE
RT1323
FOCUS
RT1317
H. SIZE
RT1324
BEAM
TP1310
TP1312
RT1325
ABO
RT1320
V.SIZE
RT1322
TARGET

Fig. 4-3 Deflection Circuit Board (Component Side)

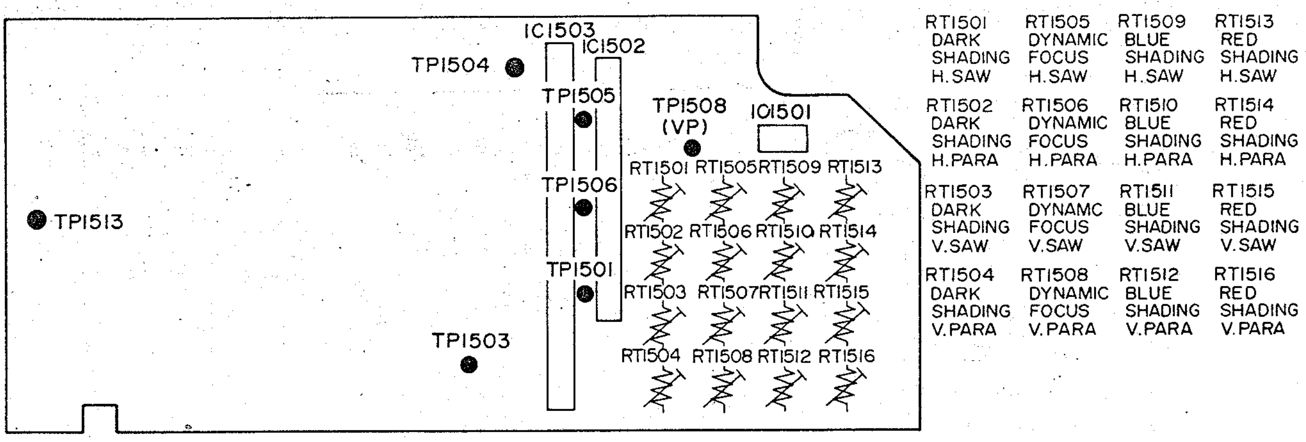

IC1503
IC1502
TP1504
TP1505
TP1508 (VP)
IO1501
TP1506
TP1513
TP1501
TP1503
RT1501 RT1505 RT1509 RT1513
RT1502 RT1506 RT1510 RT1514
RT1503 RT1507 RT1511 RT1515
RT1504 RT1508 RT1512 RT1516
RT1501 DARK SHADING H.SAW
RT1505 DYNAMIC FOCUS H.SAW
RT1509 BLUE SHADING H.SAW
RT1513 RED SHADING H.SAW
RT1502 DARK SHADING H.PARA
RT1506 DYNAMIC FOCUS H.PARA
RT1510 BLUE SHADING H.PARA
RT1514 RED SHADING H.PARA
RT1503 DARK SHADING V.SAW
RT1507 DYNAMC FOCUS V.SAW
RT1511 BLUE SHADING V.SAW
RT1515 RED SHADING V.SAW
RT1504 DARK SHADING V.PARA
RT1508 DYNAMIC FOCUS V.PARA
RT1512 BLUE SHADING V.PARA
RT1516 RED SHADING V.PARA

Fig. 4-4 Regulator Circuit Board (Solder Side)

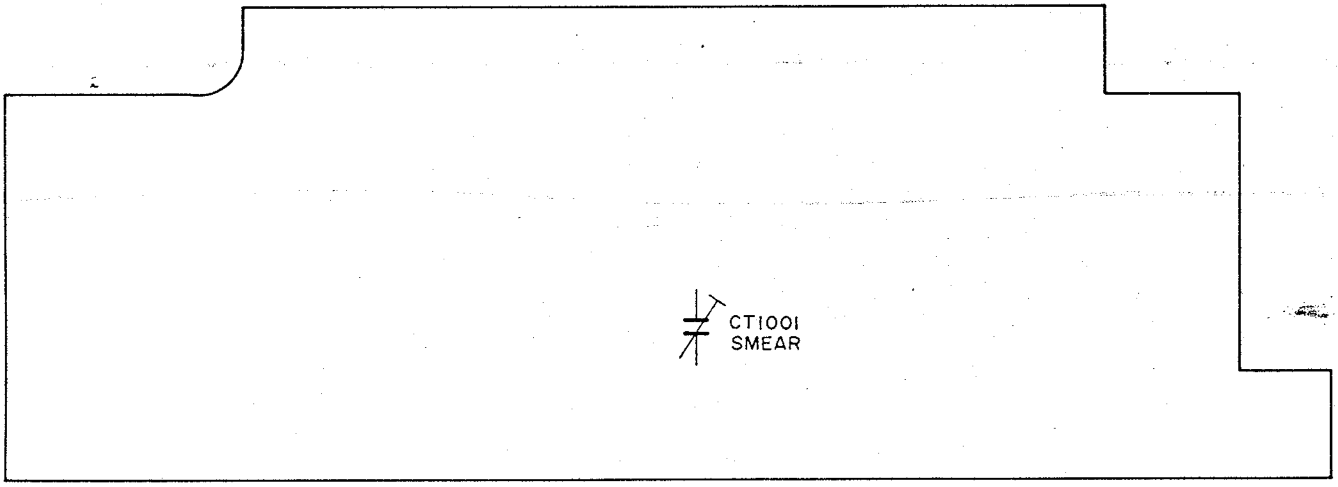

CT1001
SMEAR

Fig. 4-5 Preamp Circuit Board (Solder Side)

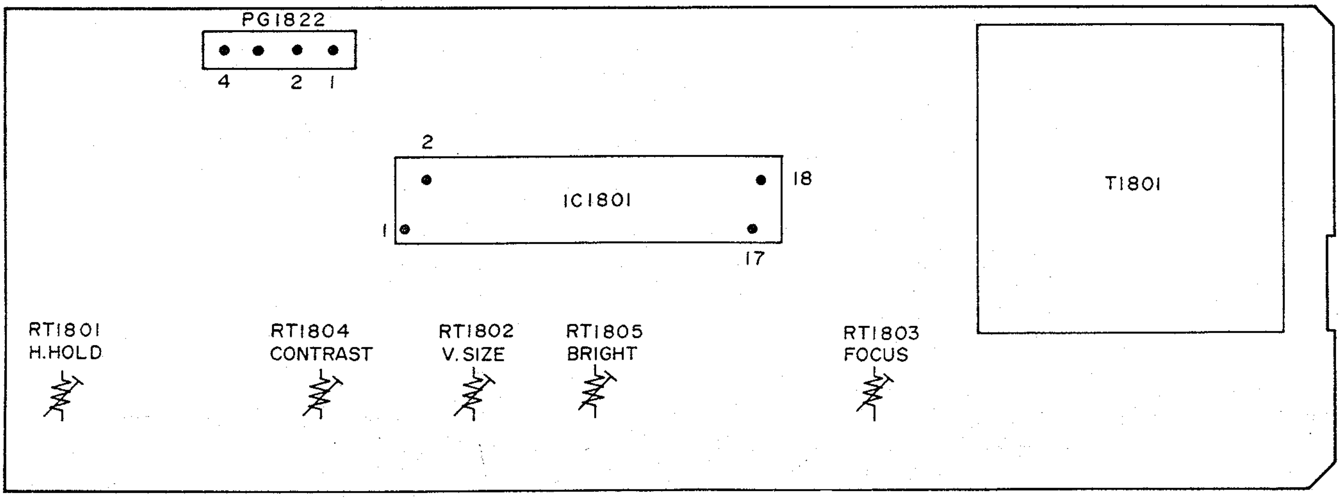

PG1822
4
2
1
2
18
IC1801
1
17
T1801
RT1801 H.HOLD
RT1804 CONTRAST
RT1802 V.SIZE
RT1805 BRIGHT
RT1803 FOCUS

Fig. 4-6 Electronic Viewfinder Circuit Board
(Component Side)

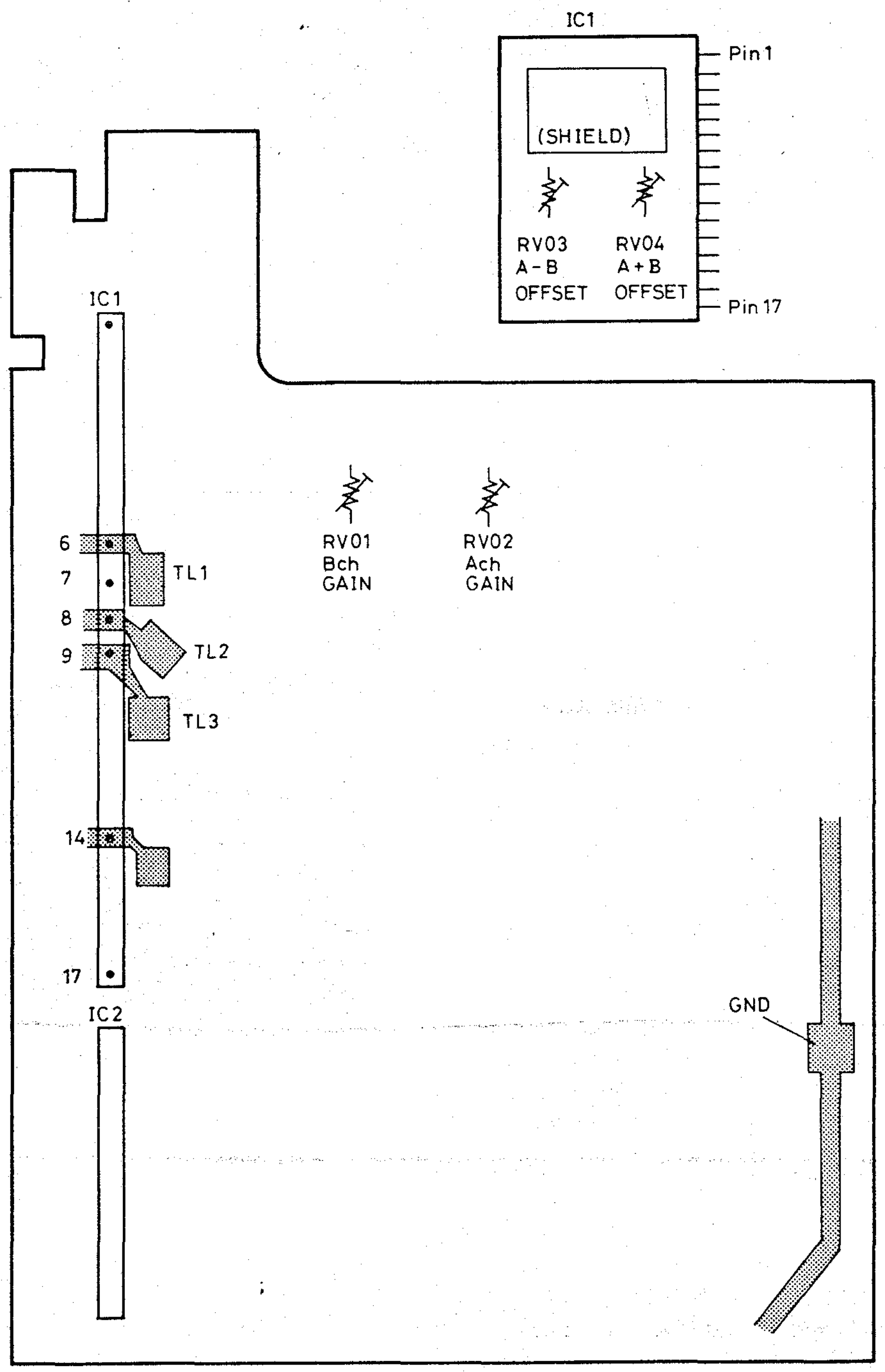

IC1
Pin 1
(SHIELD)
RV03
A - B
OFFSET
RV04
A + B
OFFSET
Pin 17
IC1
6
7
8
9
TL1
TL2
TL3
RV01
Bch
GAIN
RV02
Ach
GAIN
14
17
IC2
GND

Fig. 4-7 Auto Focus Circuit Board (Solder Side)

CAMERA SECTION

TEST EQUIPMENT REQUIRED

The following equipment is required for adjustment of VHS MOVIE.

Oscilloscope (10:1 Probe)
Digital Voltmeter (DVM)
Frequency Counter
Vectorscope
Colour Video Monitor
Gray Scale Chart with 11 steps
3200°K Light Box
Colour Bar Chart
Light Meter
Backfocus Test Chart B
Adjustment Chart
Light balancing Filter
DC Power Supply (12V)

ADJUSTMENT CONDITIONS

Setting Up

Connect the VHS MOVIE and test equipment as shown in Fig. 4-1.

Mount the Light Balancing Filter (Parts No. 7099207) to the lens.

Aim the camera at the chart fully over the video period when otherwise not specified.

Preset Position of Customer Controls and Switches

VTR/CAMERA Switch	CAMERA position
AUTO FOCUS Switch	MANUAL position
IRIS Control	CENTER position
IRIS Switch	AUTO position

White Balance Setup

1. Cap the lens.
2. Set the STAND-BY switch to OPERATE position.
3. Set the OPERATE button to "OFF".
4. Set the WHITE BAL switch to centre position.
5. Set the OPERATE button to "ON".
6. Connect the DVM to TP1117.
7. Adjust CHROMA KILLER LEVEL control (RT1123) for 2.45V ±0.01V.
8. Set LOW LIGHT CHROMA GAIN control (RT1122) to mechanical centre position.

CAMERA ADJUSTMENTS

Dynamic Focus Release (Figs. 4-4, 4-8, 4-9, 4-10)

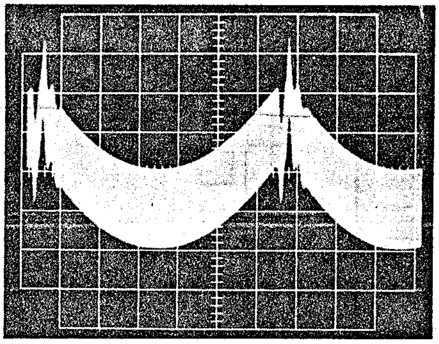
Test Point:

TP1503 (DYNAMIC FOCUS CORRECT)	Regulator

Adjust:

RT1505 (DYNAMIC FOCUS H. SAW)	Regulator
RT1506 (DYNAMIC FOCUS H. PARA)	Regulator
RT1507 (DYNAMIC FOCUS V. SAW)	Regulator
RT1508 (DYNAMIC FOCUS V. PARA)	Regulator

1. Cap the lens.
2. Connect the oscilloscope to TP1503.
3. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
4. Adjust DYNAMIC FOCUS H. SAW control (RT1505) and DYNAMIC FOCUS H. PARA control (RT1506) to make the waveforms flat.
5. Trigger the oscilloscope at V. rate. (Use TP1508 on Regulator board.)
6. Adjust DYNAMIC FOCUS V. SAW control (RT1507) and DYNAMIC FOCUS V. PARA control (RT1508) to make the waveforms flat.



NO GOOD

Fig. 4-8 Dynamic Focus Releasement

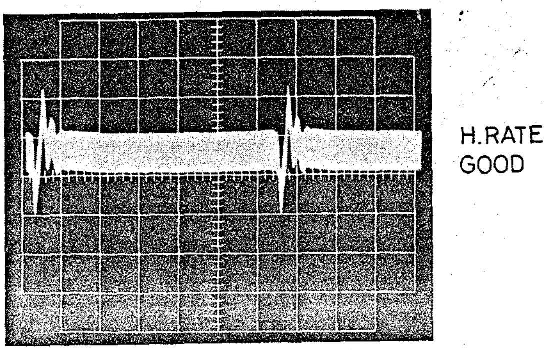


Fig. 4-9 Dynamic Focus Release

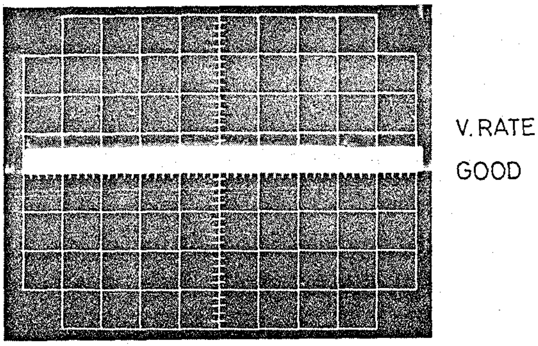


Fig. 4-10 Dyanmic Focus Release

R and B Signal Shading Release (Figs. 4-4, 4-11, 4-12)

Test Points:

TP1505 (RED SHADING CORRECT)	Regulator
TP1504 (BLUE SHADING CORRECT)	Regulator

Adjust:

RT1513 (RED SHADING H. SAW)	Regulator
RT1514 (RED SHADING H. PARA)	Regulator
RT1515 (RED SHADING V. SAW)	Regulator
RT1516 (RED SHADING V. PARA)	Regulator
RT1509 (BLUE SHADING H. SAW)	Regulator
RT1510 (BLUE SHADING H. PARA)	Regulator
RT1511 (BLUE SHADING V. SAW)	Regulator
RT1512 (BLUE SHADING V. PARA)	Regulator

1. Cap the lens.
2. Connect the oscilloscope channel-1 to TP1505.
3. Conect the oscilloscope channel-2 to TP1504.
4. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
5. Adjust RED SHADING H. SAW control (RT1513) and RED SHADING H. PARA control (RT1514) to make the waveforms at TP1505 flat.
6. Adjust BLUE SHADING H. SAW control (RT1509) and BLUE SHADING H. PARA control (RT1510) to make the waveforms at TP1504 flat.
7. Trigger the oscilloscope at V. rate. (Use TP1508 on Regulator board.)
8. Adjust RED SHADING V. SAW control (RT1515) and RED SHADING V. PARA control (RT1516) to make the waveforms at TP1505 flat.
9. Adjust BLUE SHADING V. SAW control (RT1511) and BLUE SHADING V. PARA control (RT1512) to make the waveforms at TP1504 flat.

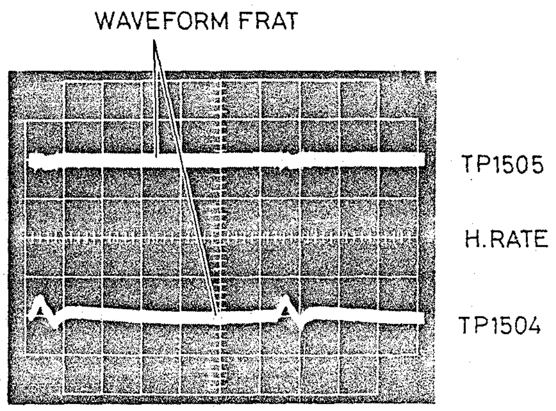


Fig. 4-11 R and B Signal Shading Release

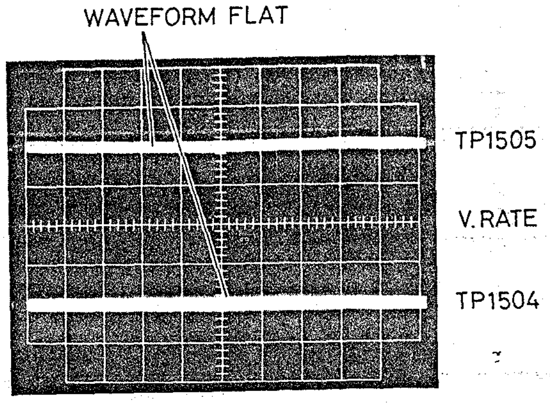


Fig. 4-12 R and B Signal Shading Release

R and B Signal Tracking Release (Fig. 4-2)

Adjust:

RT1112 (BLUE TRACKING-3)	Process
RT1111 (BLUE TRACKING-2)	Process
RT1110 (BLUE TRACKING-1)	Process
RT1109 (RED TRACKING-3)	Process
RT1108 (RED TRACKING-2)	Process
RT1107 (RED TRACKING-1)	Process

1. Cap the lens.
2. Set BLUE TRACKING-3 control (RT1112), BLUE TRACKING-2 control (RT1111), BLUE TRACKING-1 control (RT1110), RED TRACKING-3 control (RT1109), RED TRACKING-2 control (RT1108) and RED TRACKING-1 control (RT1107) to their mechanical centres.

Target Voltage Adjustment (Fig. 4-3)

Test Point:	TP1306 (TARGET)	Deflection
Adjust:	RT1322 (TARGET)	Deflection

Loss of target voltage will cause a "no picture" condition.

1. Cap the lens.
2. Connect the DVM to TP1306.
3. Adjust TARGET control (RT1322) for 51V ± 0.1V.

Beam Current Adjustment (Figs. 4-2, 4-3, 4-13, 4-14)

Test Point:	TP1101 (PRE-VIDEO)	Process
Adjust:	RT1324 (BEAM)	Deflection
	RT1325 (ABO)	Deflection

This procedure adjusts the electron beam by varying the G1 voltage. When the voltage is too high, the shading amount increases. When the voltage is too low the picture tends to "washout" or not appear at all.

Note: Perform this adjustment quickly with the lens cap removed after connecting all the measuring equipment, etc. with the lens capped. Cap the lens immediately after the adjustment is completed.

1. Aim the camera at adjustment chart.
2. Connect TP1116 to ground (TP1124).
3. Connect the oscilloscope to TP1101.
4. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
5. Turn AIC control (RT1102) fully counterclockwise (As seen from component side)
6. Adjust BEAM control (RT1324) until the waveform is clipped at 1.4Vp-p ± 0.1V (Fig. 4-13).
7. Disconnect TP1116 from ground (TP1124).
8. Adjust ABO control (RT1325) until the waveform is clipped at 2.2Vp-p ± 0.1V (Fig. 4-14).

Note: After adjustment is complete, turn RT1102 mechanical centre.

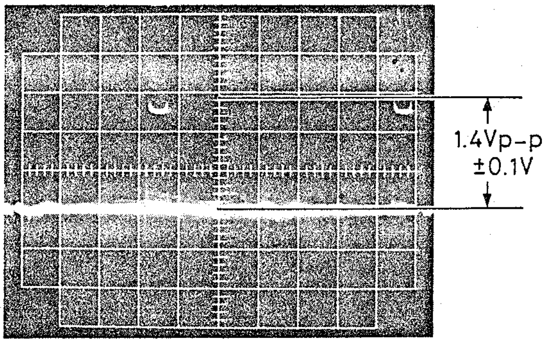


Fig. 4-13 Beam Current Adjustment

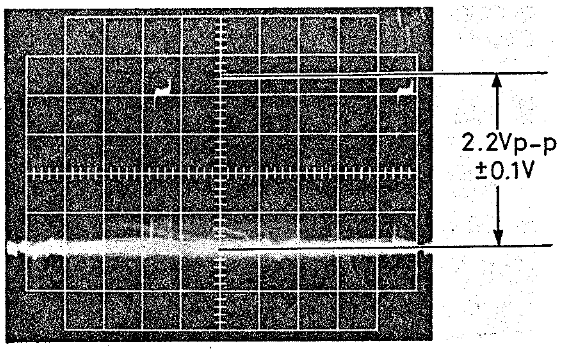


Fig. 4-14 Beam Current Adjustment

Smear Adjustment (Figs. 4-5, 4-15)

Adjust:	CT1001 (SMEAR)	Preamp
Observe:	Colour Monitor	

1. Aim the camera at the gray scale chart.
2. Adjust SMEAR control (CT1001) to minimize smear in sections where black changes to gray and white changes to gray on the gray scale chart.

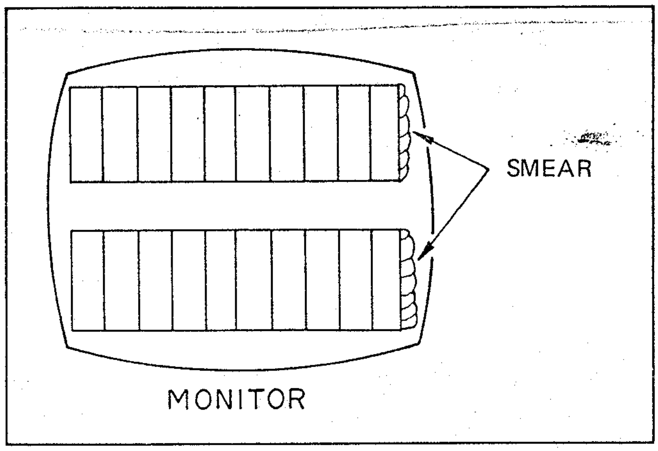


Fig. 4-15 Smear Adjustment

Dark Shading Adjustment (Figs. 4-2, 4-4, 4-16, 4-17)

Test Point:	TP1103 (AGC OUT)	Process
Adjust:	RT1501 (DARK SHADING H. SAW)	Regulator
	RT1502 (DARK SHADING H. PARA)	Regulator
	RT1503 (DARK SHADING V. SAW)	Regulator
	RT1504 (DARK SHADING V. PARA)	Regulator

This adjustment corrects shading of the bias light so that the whole picture becomes dark without colour noise when the camera is aimed at a dark place.

1. Cap the lens.
2. Connect the oscilloscope to TP1103 via a resistor (18k ohm).
3. Trigger the oscilloscope at V.rate. (Use TP1508 on Regulator board.)
4. Adjust DARK SHADING V. SAW control (RT1503) and DARK SHADING V. PARA control (RT1504) so that the waveform is flat.
5. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
6. Adjust DARK SHADING H. SAW control (RT1501) and DARK SHADING H. PARA control (RT1502) so that the waveform is flat.

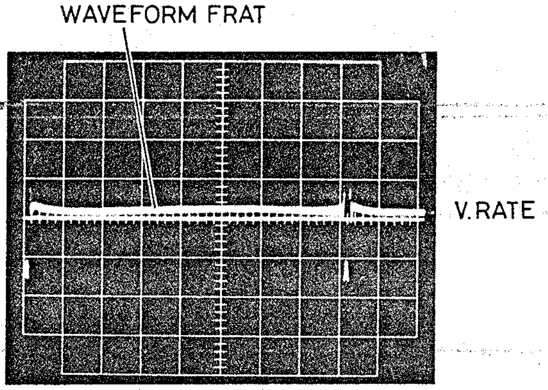


Fig. 4-16 Dark Shading Adjustment

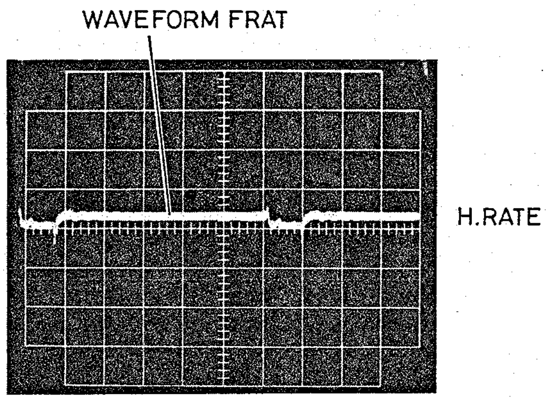


Fig. 4-17 Dark Shading Adjustment

Dark Offset Adjustment (Figs. 4-2, 4-18, 4-19)

Test Points:	VIDEO OUTPUT (TP1107)	Process
	TP1103 (AGC OUT)	Process
Adjust:	RT1101 (DARK OFFSET)	Process

This adjustment sets the black level.

1. Cap the lens.
2. Connect the oscilloscope to TP1103 via resistor (18k ohm).
3. Trigger the oscilloscope at H.rate. (Use TP1121 on process board.)
4. Adjust AGC OFFSET control (RT1101) so that the bottom edge at waveform matches the blanking level. (See Fig. 4-18)
5. Connect the oscilloscope to VIDEO OUTPUT (TP1107).
6. Adjust Y SETUP control (RT1117) for 53.5mVp-p ± 7mV from blanking level to the center of the waveform. (See Fig. 4-19)

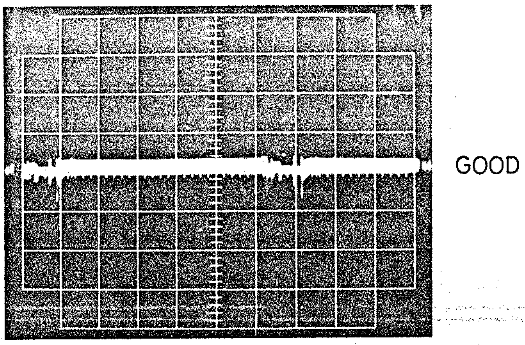


Fig. 4-18 Dark Offset Adjustment

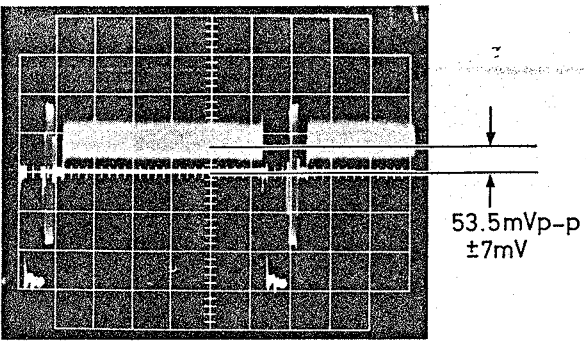


Fig. 4-19 Dark Offset Adjustment

AGC Maximum Gain Adjustment (Fig. 4-2)

Test Points: TP1102 Process
Adjust: RT1103 (LOW LIGHT GAIN) Process

1. Cap the lens.
2. Connect the DVM to TP1102.
3. Adjust the LOW LIGHT GAIN control (RT1103) for 1.25 V ± 0.05V.

AIC Level Adjustment (Figs. 4-2, 4-20)

Test Point: VIDEO OUTPUT (TP1107) Process
Adjust: RT1102 (AIC)

Make this adjustment to set the balance point of the automatic iris. Depending on the AIC setting (too high or too low), an incorrect adjustment could cause the image to appear dark or bright under normal lighting.

1. Aim the camera at the gray scale chart.
2. Connect the oscilloscope to VIDEO OUTPUT (TP1107).
3. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
4. Turn CHROMA GAIN control (RT1120) fully counterclockwise (as viewed from the component side).
5. Adjust AIC (RT1102) for 700mVp-p ± 10mV the top of the gray scale waveform.

   Note: After adjustment is complete, turn RT1120 fully clockwise.

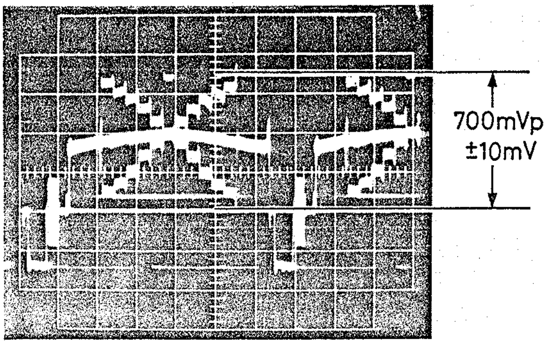


Fig. 4-20 AIC Level Adjustment

Backfocus Adjustment (Fig. 4-21)

The purpose of this adjustment is to ensure proper focus tracking throughout the zoom range.

1. Remove left case and right case.
2. Set chart illumination to 50 lux to 100 lux.
3. Aim the camera at the backfocus chart 10 feet (3 meters) away.
4. Set the focus ring to 10 feet (3 meters) position.
5. Loosen the hexagonal screw.
6. Zoom in (close up/telephoto) and adjust the lens focus.
7. Zoom out (wide angle) and insert the backfocus adjustment driver into the backfocus adjustment point and adjust the backfocus.
8. Zoom in again and adjust the lens focus.
9. Zoom out again and adjust the backfocus.
10. Repeat the procedure until the focus tracks throughout the zoom range.

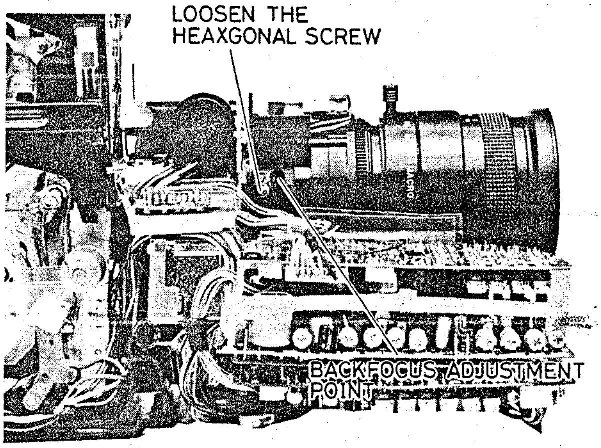


Fig. 4-21 Backfocus Adjustment

Chroma Carrier Level Adjustment (Figs. 4-2, 4-3, 4-22)

Test Point:	TP1108 (CARRIER OUT)	Process
Adjust:	RT1323 (FOCUS)	Deflection
	RT1104 (CARRIER GAIN)	Process

The purpose of this procedure is to adjust the saticon focus electrode voltage so the beam is focused on the photoconductive film and also to adjust the carrier level of the chroma signal. Incorrect carrier level setting can cause colour and tint problems.

1. Aim the camera at the gray scale chart.
2. Connect the oscilloscope to TP1108.
3. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
4. Adjust FOCUS control (RT1323) so that the waveforms are maximum.
5. Adjust CARRIER GAIN control (RT1104) so that the waveform is 700mVp-p ± 50mV.

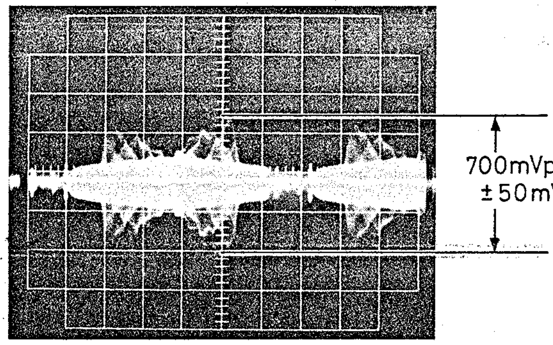


Fig. 4-22 Chroma Carrier Level Adjustment

Vertical Size Adjustment (Figs. 4-2, 4-3, 4-4, 4-23, 4-24)

Test Point:	TP1108 (CARRIER OUT)	Process
	TP1513 (5V)	Regulator
	TP1310	Deflection
Adjust:	RT1320 (V. SIZE)	Deflection

This adjustment sets the proper vertical scanning of the saticon. Improper adjustment could cause distorted images (circle becoming an ellipse) or a space at the top or bottom of the picture.

1. Marking the center on the monitor screen.
2. Connect TP1310 and TP1513.
3. Adjust V.CENTER (RT1321) so that the centre mark came to the centre of the screen.
4. Remove the shout circuit between TP1310 and TP1513.
5. Aim the camera at the light box (white chart).
6. Connect the oscilloscope to TP1108.
7. Trigger the oscilloscope at V. rate. (Use TP1508 on Regulator board.)
8. Adjust V. SIZE control (RT1320) for minimum beats during the vertical period. (Figs. 4-23, 4-24)

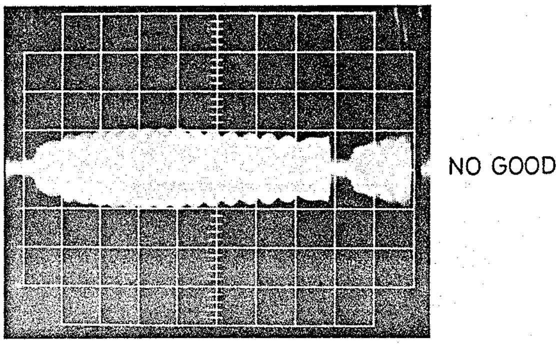


Fig. 4-23 Vertical Size Adjustment

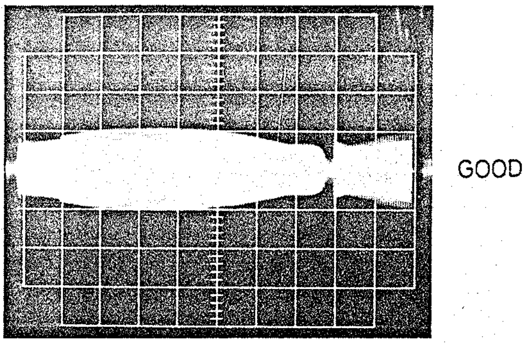


Fig. 4-24 Vertical Size Adjustment

Horizontal Size and Horizontal Linearity Adjustment (Figs. 4-2, 4-3, 4-25, 4-26, 4-27)

Test Point:	CP1101-1	Process
Adjusts:	RT1317 (H. SIZE)	Deflection
	RT1318 (H. TOP LINEAR)	Deflection
	L1302 (H. LINEAR)	Deflection

The purpose of this adjustment is to set the proper horizontal scanning of the saticon. Improper adjustment could cause distorted images or the colour balance to shift (probably to green).

1. Aim the camera at the light box (white chart).
2. Connect the oscilloscope to CP1101-1.
3. Trigger the oscilloscope at V. rate. (Use TP1508 on Regulator board.)
4. Delay the waveform and observe its centre.
5. Adjust H. SIZE control (RT1317) so that the carrier in the centre portion of the signal at CP1101-1 is minimum.
6. Adjust H. TOP LINEAR control (RT1318) for minimum carrier over the wheel Y signal. Adjust H. LINEAR control (L1302) so the carrier at the starting portion of Y signal at point CP1101-1 is minimum, and the starting portion of Y signal becomes as flat as possible.

Note: When use the oscilloscope not provided a delay function adjust items 5 and 6 with triggering the oscilloscope at H. rate.

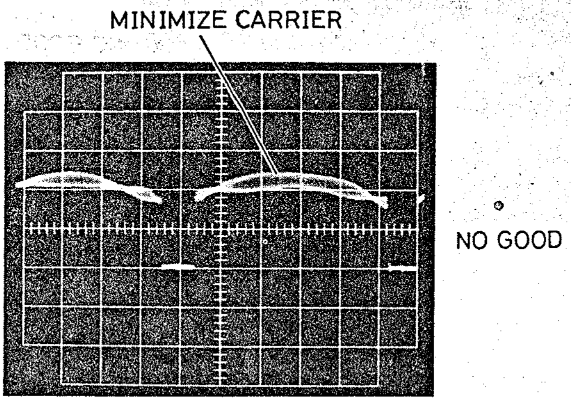


Fig. 4-25 Horizontal Size and Linearity Adjustment

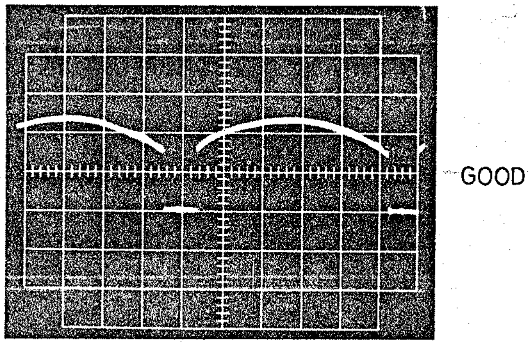


Fig. 4-26 Horizontal Size and Linearity Adjustment

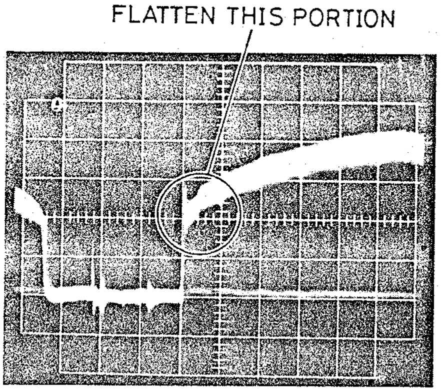


Fig. 4-27 Horizontal Size and Linearity Adjustment

Horizontal Centre and Vertical Centre Adjustment
(Figs. 4-3, 4-4)

Adjust:	RT1319 (H. CENTRE)	Deflection
	RT1321 (V. CENTRE)	Deflection
Test Points:	TP1310	Deflection
	TP1312	Deflection
	TP1513 (5V)	Regulator
Observe:	Colour Monitor	

This adjustment determines the horizontal and vertical deflection positions in the saticon. If misadjusted a space could appear on either side of the picture.

*Vertical Center Adjustment
1. Marking the centre on the monitor screen.
2. Connect TP1310 and TP1513.
3. Adjust V. CENTRE (RT1321) so that the centre mark come to the centre of the screen.
4. Remove shout circuit between TP1310 and TP1513.

*Horizontal Centre Adjustment
1. Marking the centre on the monitor screen.
2. Connect TP1312 and TP1513.
3. Adjust H. CENTRE (RT1319) so that the centre mark come to the centre of the screen.
4. Remove shout circuit between TP1312 and TP1513.

Chroma Setup Adjustment (Figs. 4-2, 4-28)

Test Point:	TP1114 (B-YL SIGNAL)	Process
	TP1113 (R-YL SIGNAL)	Process
Adjust:	RT1115 (RED SETUP)	Process
	RT1116 (BLUE SETUP)	Process

This adjustment makes the picture black without colour noise when the camera is aimed at a dark place.

1. Cap the lens.
2. Connect the oscilloscope channel-1 to TP1114.
3. Connect the oscilloscope channel-2 to TP1113.
4. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
5. Adjust BLUE SETUP control (RT1116) so that the top edge of chroma level at TP1114 matches the blanking level.
6. Adjust RED SETUP control (RT1115) so that the top edge of chroma level at TP1113 matches the blanking level.

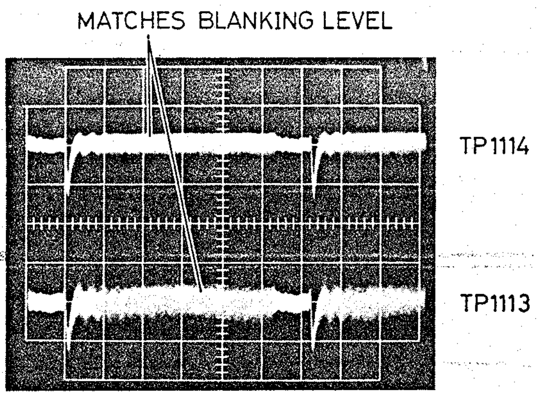


Fig. 4-28 Chroma Setup Adjustment

R and B Signal Gain and Separation Adjustment

1) R and B Signal Separation Adjustment (Figs. 4-2, 4-29)

Test Point:	TP1114 (B-YL SIGNAL)	Process
	TP1113 (R-YL SIGNAL)	Process
Adjust:	RT1105 (SEPA GAIN)	Process
	RT1106 (SEPA PHASE)	Process

1. Aim the camera at the light box (white chart).
2. Connect the oscilloscope channel-1 to TP1114.
3. Connect the oscilloscope channel-2 to TP1113.
4. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
5. Adjust SEPA PHASE control (RT1106) and SEPA GAIN control (RT1105) for minimum flicker in the waveforms.

2) R and B Signal Gain Adjustment (Figs. 4-2, 4-30)

Test Point:	TP1114 (B-YL SIGNAL)	Process
	TP1113 (R-YL SIGNAL)	Process
Adjust:	RT1114 (BLUE GAIN)	Process
	RT1113 (RED GAIN)	Process

1. Aim the camera at the light box (white chart).
2. Connect the oscilloscope channel-1 to TP1114.
3. Connect the oscilloscope channel-2 to TP1113.
4. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
5. Adjust BLUE GAIN control (RT1114) so that the top edge of chroma level at TP1114 matches the blanking level.
6. Adjust RED GAIN control (RT1113) so that the top edge of chroma level at TP1113 matches the blanking level.

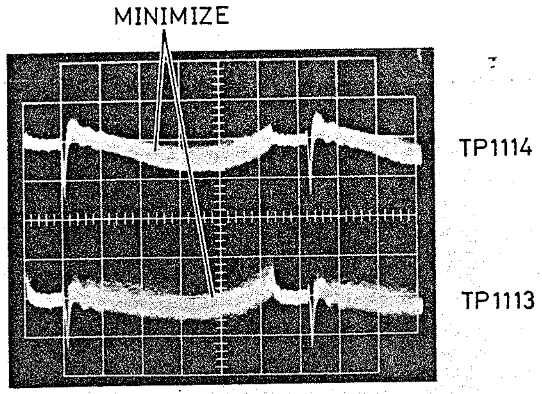


Fig. 4-29 R and B Signal Separation Adjustment

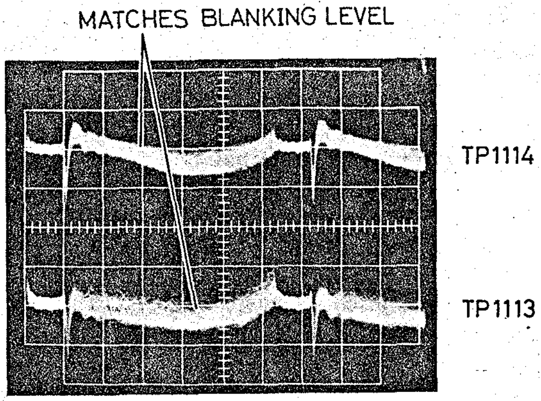


Fig. 4-30 R and B Signal Gain Adjustment

Focus Preset Adjustment (Figs. 4-2, 4-3, 4-31)

Test Points:	TP1109 (R SIGNAL)	Process
	TP1110 (B SIGNAL)	Process
Adjust:	RT1323 (FOCUS)	Deflection

1. Aim the camera at the gray scale chart.
2. Connect the oscilloscope channel-1 to TP1109.
3. Connect the oscilloscope channel-2 to TP1110.
4. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
5. Adjust FOCUS control (RT1323) so that the gray level of the waveform is 1st – 6th steps from the top are maximum.

   Note: When the waveform fluctuates regardless of correct synchronization during the above adjustment, adjust RT1105 and RT1106 so that fluctuations of the waveform becomes small and then adjust RT1323.

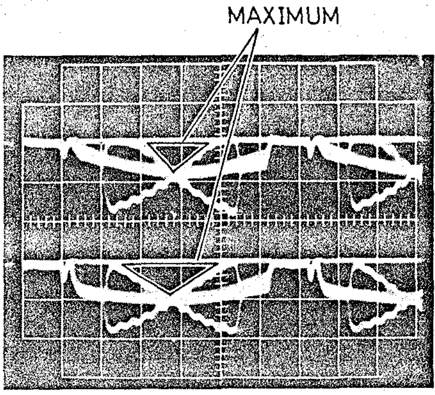


Fig. 4-31 Focus Preset Adjustment

Dynamic Focus Preset Adjustment
(Figs. 4-2, 4-4, 4-32, 4-33)

Test Point:	TP1113 (R-YL SIGNAL)	Process
	TP1114 (B-YL SIGNAL)	Process
Adjust:	RT1508 (DYNAMIC FOCUS V. PARA)	Regulator
	RT1507 (DYNAMIC FOCUS V. SAW)	Regulator
	RT1506 (DYNAMIC FOCUS H. PARA)	Regulator
	RT1505 (DYNAMIC FOCUS H. SAW)	Regulator

1. Aim the camera at the light box (white chart).
2. Connect the oscilloscope channel-1 to TP1114.
3. Connect the oscilloscope channel-2 to TP1113.
4. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
5. Adjust DYNAMIC FOCUS H. PARA control (RT1506) and DYNAMIC FOCUS H. SAW control (RT1505) to make the waveforms flat.
6. Trigger the oscilloscope at V. rate. (Use TP1508 on Regulator board.)
7. Adjust DYNAMIC FOCUS V. PARA control (RT1508) and DYNAMIC FOCUS V. SAW control (RT1507) to make the waveforms flat.

   Note: Repeat this adjustment.

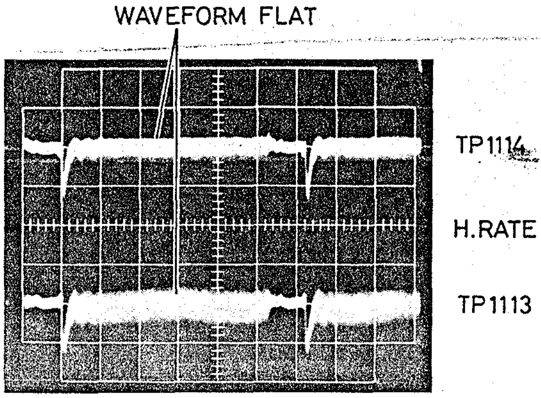


Fig. 4-32 Dynamic Focus Preset Adjustment

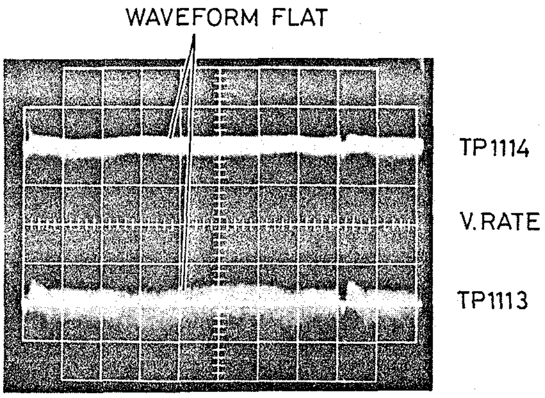


Fig. 4-33 Dynamic Focus Preset Adjustment

R and B Signal Shading Preset Adjustment

1) R Signal Shading Preset Adjustment
(Figs. 4-2, 4-4, 4-34, 4-35)

Test Point:	TP1113 (R-YL SIGNAL)	Process
Adjust:	RT1513 (RED SHADING H. SAW)	Regulator
	RT1514 (RED SHADING H. PARA)	Regulator
	RT1515 (RED SHADING V. SAW)	Regulator
	RT1516 (RED SHADING V. PARA)	Regulator

1. Aim the camera at the light Box (white chart).
2. Connect the oscilloscope to TP1113.
3. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
4. Adjust RED SHADING H. SAW control (RT1513) and RED SHADING H. PARA control (RT1514) to make the waveforms flat.
5. Trigger the oscilloscope at V. rate. (Use TP1508 on Regulator board.)
6. Adjust RED SHADING V. SAW control (RT1515) and RED SHADING V. PARA control (RT1516) to make the waveforms flat.

2) B Signal Shading Preset Adjustment
(Figs. 4-2, 4-4, 4-34, 4-35)

Test Point:	TP1114 (B-YL SIGNAL)	Process
Adjust:	RT1509 (BLUE SHADING H. SAW)	Regulator
	RT1510 (BLUE SHADING H. PARA)	Regulator
	RT1511 (BLUE SHADING V. SAW)	Regulator
	RT1512 (BLUE SHADING V. PARA)	Regulator

1. Aim the camera at the light box (white chart).
2. Connect the oscilloscope to TP1114.
3. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
4. Adjust BLUE SHADING H. SAW control (RT1509) and BLUE SHADING H. PARA control (RT1510) to make the waveforms flat.
5. Trigger the oscilloscope at V. rate. (Use TP1508 on Regulator board.)
6. Adjust BLUE SHADING V. SAW control (RT1511) and BLUE SHADING V. PARA control (RT1512) to make the waveforms flat.

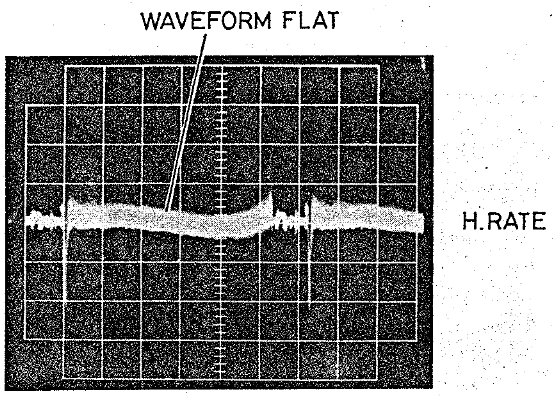


Fig. 4-34 R and B Signal Shading Preset Adjustment

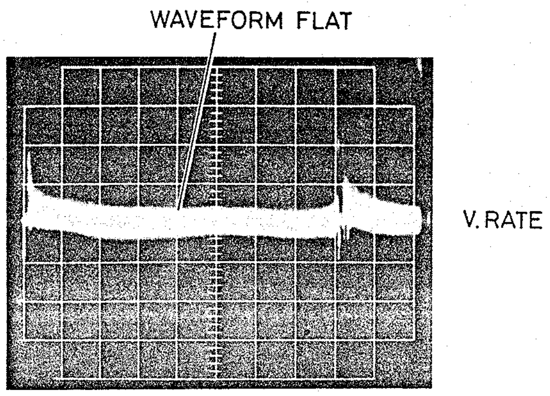


Fig. 4-35 R and B Signal Shading Preset Adjustment

R and B Signal Tracking Preset Adjustment (Figs. 4-2, 4-36)

Test Points:	TP1114 (B-YL SIGNAL)	Process
	TP1113 (R-YL SIGNAL)	Process
Adjust:	RT1114 (BLUE GAIN)	Process
	RT1113 (RED GAIN)	Process
	RT1110 (BLUE TRACKING-1)	Process
	RT1107 (RED TRACKING-1)	Process
	RT1111 (BLUE TRACKING-2)	Process
	RT1108 (RED TRACKING-2)	Process
	RT1112 (BLUE TRACKING-3)	Process
	RT1109 (RED TRACKING-3)	Process

1. Aim the camera at the gray scale chart.
2. Connect the oscilloscope channel-1 to TP1114.
3. Connect the oscilloscope channel-2 to TP1113.
4. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board)
5. Adjust BLUE GAIN control (RT1114), BLUE TRACKING-1 control (RT1110), BLUE TRACKING-2 control (RT1111) and BLUE TRACKING-3 control (RT1112) to make the waveforms flat and match the blanking level at TP1114.
6. Adjust RED GAIN control (RT1113), RED TRACKING-1 control (RT1107), RED TRACKING-2 control (RT1108) and RED TRACKING-3 control (RT1109) to make the waveforms flat and match the blanking level at TP1113.

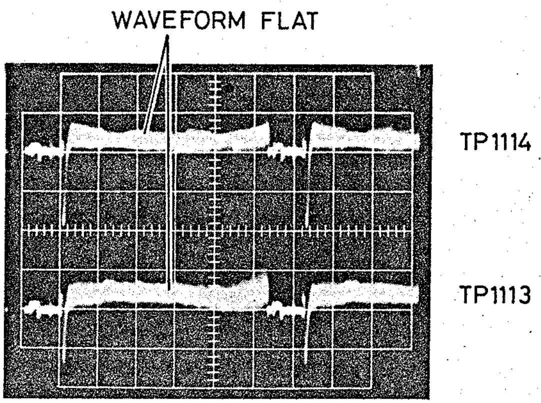


Fig. 4-36 R and B Signal Tracking Preset Adjustment

Focus Adjustment (Figs. 4-2, 4-3, 4-37)

Test Point:	TP1109 (R SIGNAL)	Process
	TP1110 (B SIGNAL)	Process
Adjust:	RT1323 (FOCUS)	Deflection

1. Aim the camera at the gray scale chart.
2. Connect the oscilloscope channel-1 to TP1109.
3. Connect the oscilloscope channel-2 to TP1110.
4. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
5. Adjust FOCUS control (RT1323) so that the gray level of the waveform is level of 1st – 6th steps from the bottom are maximum.

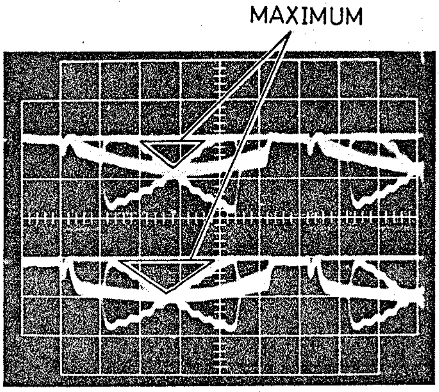


Fig. 4-37 Focus Adjustment

Chroma Carrier Level Confirmation (Fig. 4-2)

Test Point:	TP1108 (CARRAIER OUT)	Process

1. Aim the camera at the gray scale chart.
2. Connect the oscilloscope to TP1108.
3. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
4. Confirm that the waveform is 700mV ± 50m Vp-p.
   If it is not within the range, readjust CHROMA CARRIER LEVEL control (RT1104).

Dynamic Focus Adjustment (Figs. 4-2, 4-4, 4-38, 4-39)

Test Point:	TP1113 (R-YL SIGNAL)	Process
	TP1114 (B-YL SIGNAL)	Process
Adjust:	RT1508 (DYNAMIC FOCUS V. PARA)	Regulator
	RT1507 (DYNAMIC FOCUS V. SAW)	Regulator
	RT1506 (DYNAMIC FOCUS H. PARA)	Regulator
	RT1505 (DYNAMIC FOCUS H. SAW)	Regulator

This adjustment corrects for focusing errors away from the centre of the tube caused by scanning a flat surface. Misadjustment of these controls will cause colour unevenness to increase.

1. Aim the camera at the light box (white chart).
2. Connect the oscilloscope channel-1 to TP1114.
3. Connect the oscilloscope channel-2 to TP1113.
4. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
5. Adjust DYNAMIC FOCUS H. PARA control (RT1506) and DYNAMIC FOCUS H. SAW control (RT1505) to make the waveforms flat.
6. Trigger the oscilloscope at V. rate. (Use TP1508 on Regulator board.)
7. Adjust DYNAMIC FOCUS V. PARA control (RT1508) and DYNAMIC FOCUS V. SAW control (RT1507) to make the waveforms flat.

Note: Repeat this adjustment.

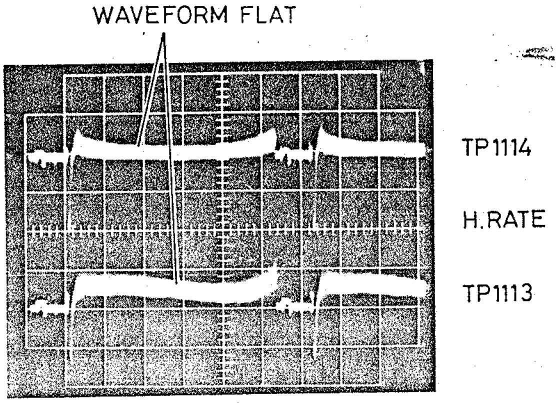


Fig. 4-38 Dynamic Focus Adjustment

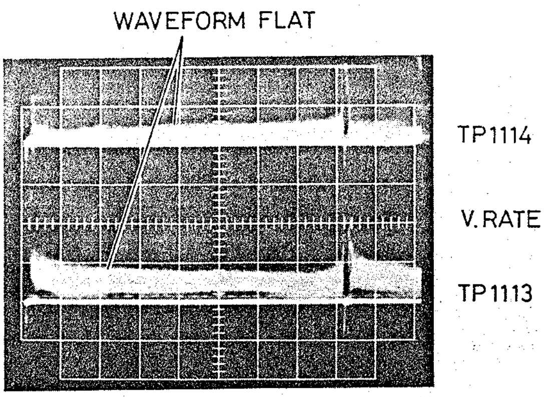


Fig. 4-39 Dynamic Focus Adjustment

R and B Signal Shading Adjustment

1) R Signal Shading Adjustment (Figs. 4-2, 4-4, 4-40, 4-41)

Test Point: TP1113 (R-YL SIGNAL) Process
Adjust: RT1513 (RED SHADING H. SAW) Regulator
RT1514 (RED SHADING H. PARA) Regulator
RT1515 (RED SHADING V. SAW) Regulator
RT1516 (RED SHADING V. PARA) Regulator

The purpose of this adjustment is to correct for red signal colour unevenness.

1. Aim the camera of the light box (White chart).
2. Connect the oscilloscope to TP1113.
3. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
4. Adjust RED SHADING H. SAW control (RT1513) and RED SHADING H. PARA control (RT1514) to make the waveforms flat.
5. Trigger the oscilloscope at V. rate. (Use TP1508 on Regulator board.)
6. Adjust RED SHADING V. SAW control (RT1515) and RED SHADING V. PARA control (RT1516) to make the waveforms flat.

2) B Signal Shading Adjustment (Figs. 4-2, 4-4, 4-40, 4041)

Test Point: TP1114 (B-YL SIGNAL) Process
Adjust: RT1509 (BLUE SHADING H. SAW) Regulator
RT1510 (BLUE SHADING H. PARA) Regulator
RT1511 (BLUE SHADING V. SAW) Regulator
RT1512 (BLUE SHADING V. PARA) Regulator

The purpose of this adjustment is to correct for blue signal colour unevenness.

1. Aim the camera at the light box (white chart).
2. Connect the oscilloscope to TP1114.
3. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
4. Adjust BLUE SHADING H. SAW control (RT1509) and BLUE SHADING H. PARA control (RT1510) to make the waveforms flat.
5. Trigger the oscilloscope at V. rate. (Use TP1508 on Regulator board.)
6. Adjust BLUE SHADING V. SAW control (RT1511) and BLUE SHADING V. PARA control (RT1512) to make the waveforms flat.

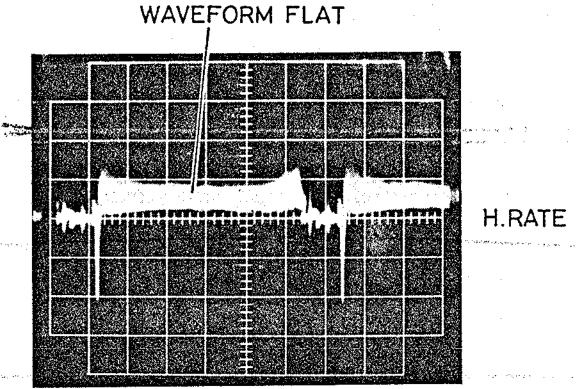


Fig. 4-40 R and B Signal Shading Adjustment

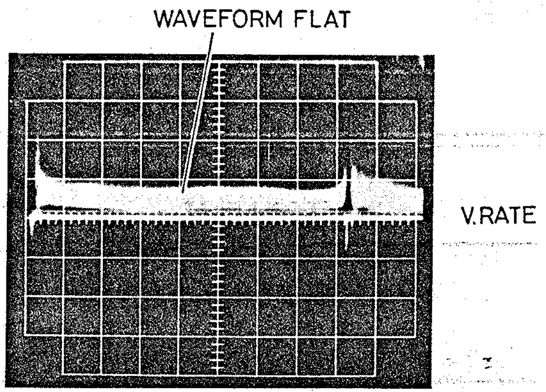


Fig. 4-41 R and B Signal Shading Adjustment

R and B Signal Tracking Adjustment (Figs. 4-2, 4-42)

Test Point:	TP1114 (B-YL SIGNAL)	Process
	TP1113 (R-YL SIGNAL)	Process
Adjust:	RT1114 (BLUE GAIN)	Process
	RT1113 (RED GAIN)	Process
	RT1110 (BLUE TRACKING-1)	Process
	RT1107 (RED TRACKING-1)	Process
	RT1111 (BLUE TRACKING-2)	Process
	RT1108 (RED TRACKING-2)	Process
	RT1112 (BLUE TRACKING-3)	Process
	RT1109 (RED TRACKING-3)	Process

These adjustments ensure that the red and blue signals track properly with the Y signal at all light levels.

1. Aim the camera at the gray scale chart.
2. Connect the oscilloscope channel-1 to TP1114.
3. Connect the oscilloscope channel-2 to TP1113.
4. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
5. Adjust BLUE GAIN control (RT1114), BLUE TRACKING-1 control (RT1110), BLUE TRACKING-2 control (RT1111) and BLUE TRACKING-3 control (RT1112) to make the waveforms flat and match the blanking level at TP1114.
6. Adjust RED GAIN control (RT1113), RED TRACKING-1 control (RT1107), RED TRACKING-2 control (RT1108) and RED TRACKING-3 control (RT1109) to make the waveforms flat and match the blanking level at TP1113.

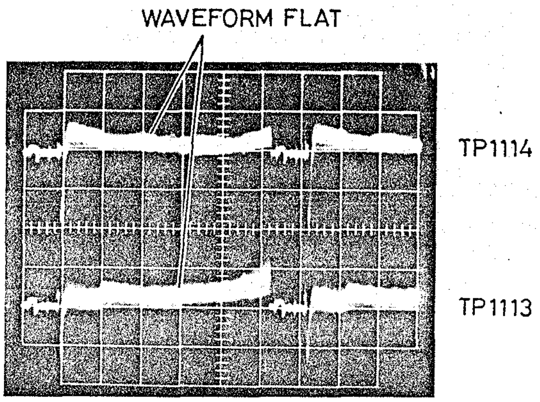


Fig. 4-42 **R and B Signal Tracking Adjustment**

Burst Level Adjustment (Figs. 4-2, 4-43)

Test Point:	VIDEO OUTPUT (TP1107)	Process
Adjust:	RT1121 (BURST LEVEL)	Process

This adjustment determines the position of colour saturation.

1. Aim the camera at the gray scale chart.
2. Connect the oscilloscope to VIDEO OUTPUT (TP1107).
3. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
4. Adjust BURST LEVEL control (RT1121) for 280mVp-p ± 15mV to the burst level of gray scale waveform.

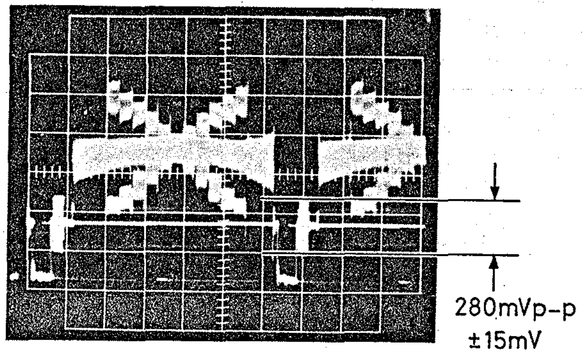


Fig. 4-43 Burst Level Adjustment

Chroma Gain and Phase Adjustment (Figs. 4-2, 4-44)

Test Point: VIDEO OUTPUT (PAL OUT)
Adjust: RT1120 (CHROMA GAIN) Process
CT1102 (BURST PHASE) Process
Observe: Colour Monitor

* Adjustment using vectorscope

1. Aim the camera at the colour bar chart.
2. Set the white balance.
3. Connect the VIDEO OUTPUT terminated vectorscope.
4. Adjust CHROMA GAIN control (RT1120) so that the red vector is equal to 220% ±10% when compared to the burst level.
5. Adjust BURST PHASE control (CT1102) to minimize flicker on the monitor screen.

* Adjustment using monitor TV

1. Aim the camera at the colour bar chart.
2. Set the white balance.
3. Adjust CHROMA GAIN control (RT1120) so that the tint of the red of the both the TV screen and the colour bar chart match as much as possible.
4. Adjust BURST PHASE control (CT1102) to minimize flicker on the monitor screen.

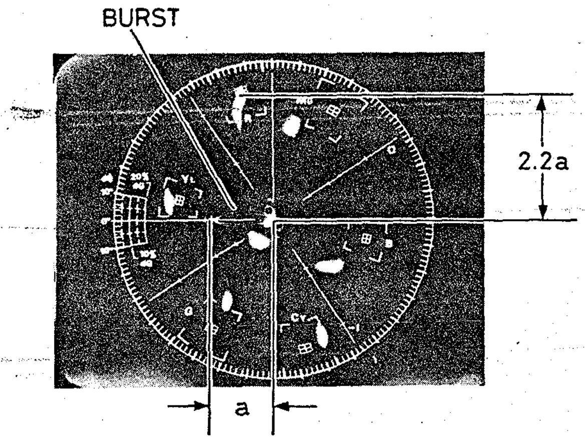


Fig. 4-44 Chroma Gain and Phase Adjustment

Low Light Chroma Gain Adjustment (Figs. 4-2, 4-45)

Test Point: TP1117 Process
Adjust: RT1122 (LOW LIGHT CHROMA GAIN) Process
RT1123 (CHROMA KILLER LEVEL) Process
Observe: Colour Monitor

This adjustment sets colouring low illumination.

1. Aim the camera at the gray scale chart.
2. Connect the oscilloscope to TP1117.
3. Trigger the oscilloscope at H. rate. (Use TP1121 on Process board.)
4. Adjust LOW LIGHT CHROMA GAIN control (RT1122) so that the waveform is 410 mVp-p ±10 mV.
5. Aim the camera at a dark place with approx. 20 lux.
6. Set CHROMA KILLER LEVEL control (RT1123) to a position where noise on the monitor screen start to increase abruptly.

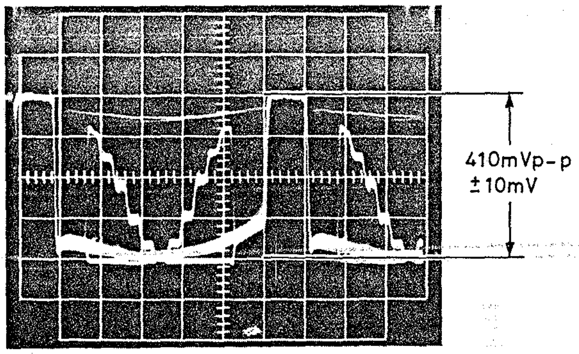


Fig. 4-45 Low Light Chroma Gain Adjustment

White Balance Confirmation

1. Switch the White Balance Control "Auto", and if the picture is greatly different from that when the control is in the "Manual" position, adjust the following.
   - Chroma Setup Adjustment
   - R and B Signal Tracking Adjustment
   - Chroma Gain and Phase Adjustment

VIEWFINDER ADJUSTMENTS

The conditions and connections for viewfinder adjustment are the same as shown in Fig. 4-1.

Horizontal Hold Adjustment (Figs. 4-8, 4-50)

Test Point: TP1801 (TP1802) Electronic Viewfinder
Adjust: RT1801 (H. HOLD) Electronic Viewfinder

This procedure sets the horizon sync frequency during VTR playback.

1. Connect the frequency counter to IC1801-2 on the electronic viewfinder board.
2. Set the H. HOLD (RT1801) to mechanical center.
3. Connect a capacitor (47μF) between pins 1 and 2 of PG1822 (TP1801).
4. Adjust H. H18LD (RT801) for 15.75 ± 0.1kHz.
5. Disconnect the capacitor connected between pins 1 and 2 of PG1822.

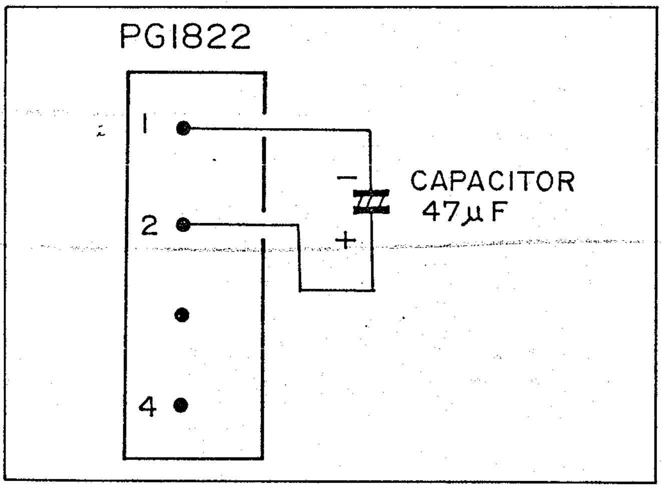


Fig. 4-50. Horizontal Hold Adjustment

Picture Tilt Adjustment (Fig. 4-51)

Adjust: Deflection Coil
Observe: Viewfinder

This procedure is used to set the picture tilt of the EVF image.

1. Make sure the camera is aligned with the chart.
2. Loosen the deflection coil holding screw.
3. Observe the viewfinder, and turn the deflection coil until the image is straight.
4. Tighten the screw holding the deflection coil.

Centering Magnets Adjustment (Fig. 4-51)

Adjust: Centreing Magnets
Observe: Viewfinder

This adjustment sets the centre of the image picked up by the camera to the centre of the EVF screen.

1. Aim the camera at a resolution chart.
2. Adjust the centreing magnets until the centre of the picture (+) comes to the centre of viewfinder raster.

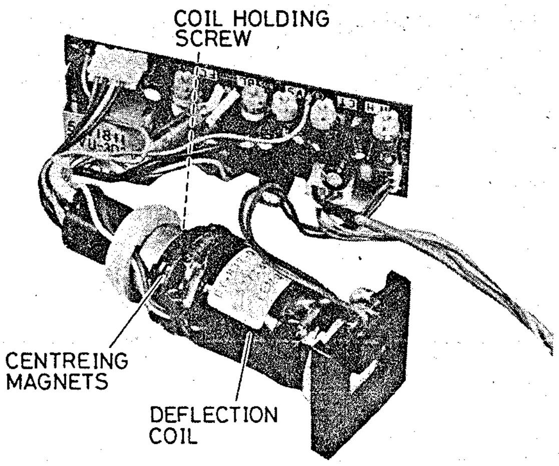


Fig. 4-51 Picture Tilt and Centering Magnets Adjustment

Vertical Size Adjustment (Fig. 4-8)

Adjust: RT1802 (V. SIZE) Electronic Viewfinder
Observe: Viewfinder

This adjustment determines the vertical deflection size.

1. Aim the camera at a resolution chart, and line up the reference arrow head with the edge of the raster (blanking) in the EVF.
2. Adjust V. SIZE (RT1802) so that the circle in the chart is round.

Focus Adjustment (Fig. 4-8)

Adjust: RT1803 (FOCUS) Electronic Viewfinder
Observe: Viewfinder

This adjustment sets the focus so that sharpness of the picture is best.

1. Aim the camera at the resolution chart.
2. Adjust FOCUS (RT1803) for the best resolution in the viewfinder.

Contrast and Brightness Adjustment (Fig. 4-8)

Adjust:	RT1804 (CONTRAST)	Electronic Viewfinder
	RT1805 (BRIGHT)	Electronic Viewfinder
Observe:		Viewfinder

This procedure sets the normal viewing level of the picture.

1. Aim the camera at the gray scale chart.
2. Adjust BRIGHT (RT1805) and CONTRAST (RT1804) so that B/W tip graduations in the viewfinder screen match those on the monitor.

AUTO FOCUS ADJUSTMENT

1. Offset Adjustment (Figs. 4-7, 4-52)

Test Points:	TL1	(A+B)	Auto Focus
	TL3	(A-B)	Auto Focus
Adjust:	RV04 (A+B OFFSET)		Auto Focus
	RV03 (A–B OFFSET)		Auto Focus

1. Connect IC1-14 and GND.
2. Cover the infrared receiver with thick black paper to shut off the infrared rays.
3. Connect the oscilloscope channel-1 to TL1 (A+B).
4. Connect the oscilloscope channel-2 to TL3 (A–B).
5. Trigger the oscilloscope. (Use TL2 (SZ))
6. Turn the focus ring forcibly to its closeup (1.2m) end.
7. Adjust A+B OFFSET (RV04) so the waveform for channel-1 is minimum.
8. Adjust A–B OFFSET (RV03) so the waveform for channel-2 is minimum.
9. Disconnect short circuit IC1-14 and GND.

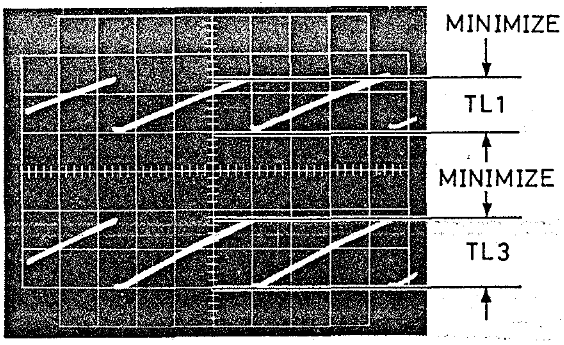


Fig. 4-52 Offset Adjustment

2. Gain Adjustment (Figs. 4-7, 4-53)

Test Point:	TL1 (A+B)	Auto Focus
Test:	RV01 (Bch GAIN)	Auto Focus
	RV02 (Ach GAIN)	

1. Connect IC1-14 and GND.
2. Aim the camera at a white object.
3. Move the object 50cm away from the infrared receiver.
4. Cover the receiver with a sheet of thin transparent paper (tracking paper, etc.).
5. Connect the oscilloscope to TL1 (A+B).
6. Turn the focus ring forcibly to its infinite (∞) end.
7. Adjust Ach GAIN (RV02) first and then adjust Bch GAIN (RV01) to shorten the trailing edge period of the waveforms.
8. Disconnect short circuit IC1-14 and GND.

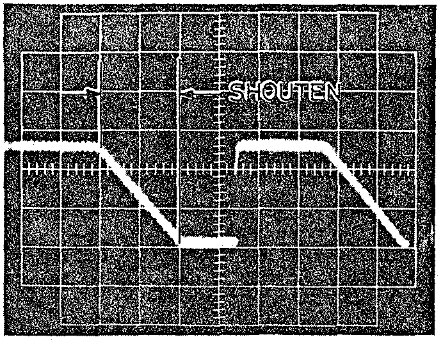


Fig. 4-53 Gain Adjustment

3. Offset Confirmation (Figs. 4-7, 4-52)

Test Points:	TL1 (A+B)	Auto Focus
	TL3 (A–B)	Auto Focus

1. Connect IC1-14 and GND.
2. Cover the infrared receiver with thick black paper to shut off the infrared rays.
3. Connect the oscilloscope channel-1 to TL-1 (A+B).
4. Connect the oscilloscope channel-2 to TL3 (A–B).
5. Confirm that the waveform is 0Vp-p ± 50mV.
6. If it is not within the range, readjust offset.
7. Disconnect short circuit IC1-14 and GND.

4. Sensor Position Adjustment (Fig. 4-54)

Adjust: Sensor Adjustment Screw
Observe: Monitor

1. Aim the camera at the resolution chart. (Set the power switch of light box to OFF position.)
2. Move the object 3m away from the camera lens.
3. Adjust the Sensor Adjustment Screw for optimum focus of the monitored picture.

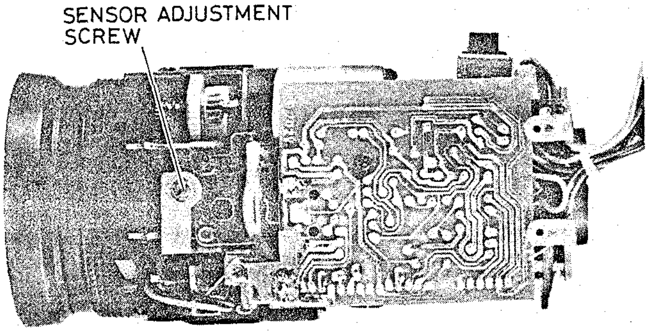


Fig. 4-54 Sensor Horizontal Position Adjustment

ADJUSTMENT PROCEDURE

Adjustment After Replacing Saticon

1. Dynamic Focus Release
2. R and B Signal Shading Release
3. R and B Signal Tracking Release
4. Target Voltage Adjustment
5. Beam Current Adjustment
6. Streaking Adjustment
7. Dark Shading Adjustment
8. Dark Offset Adjustment
9. AGC Maximum Gain Adjustment
10. AIC Level Adjustment
11. Backfocus Adjustment
12. Chroma Carrier Level Adjustment
13. Vertical Size Adjustment
14. Horizontal Size and Horizontal Linearity Adjustment
15. Horizontal Center and Vertical Center Adjustment
16. Chroma Setup Adjustment
17. R and B Signal Gain and Separation Adjustment
18. Focus Preset Adjustment
19. Dynamic Focus Preset Adjustment
20. R and B Signal Shading Preset Adjustment
21. R and B Signal Tracking Preset Adjustment
22. Focus Adjustment
23. Chroma Carrier Level Confirmation
24. Dynamic Focus Adjustment
25. R and B Signal Shading Adjustment
26. R and B Signal Tracking Adjustment
27. Burst Level Adjustment
28. Chroma Gain and Phase Adjustment
29. Low Light Chroma Gain Adjustment
30. White Balance Confirmation

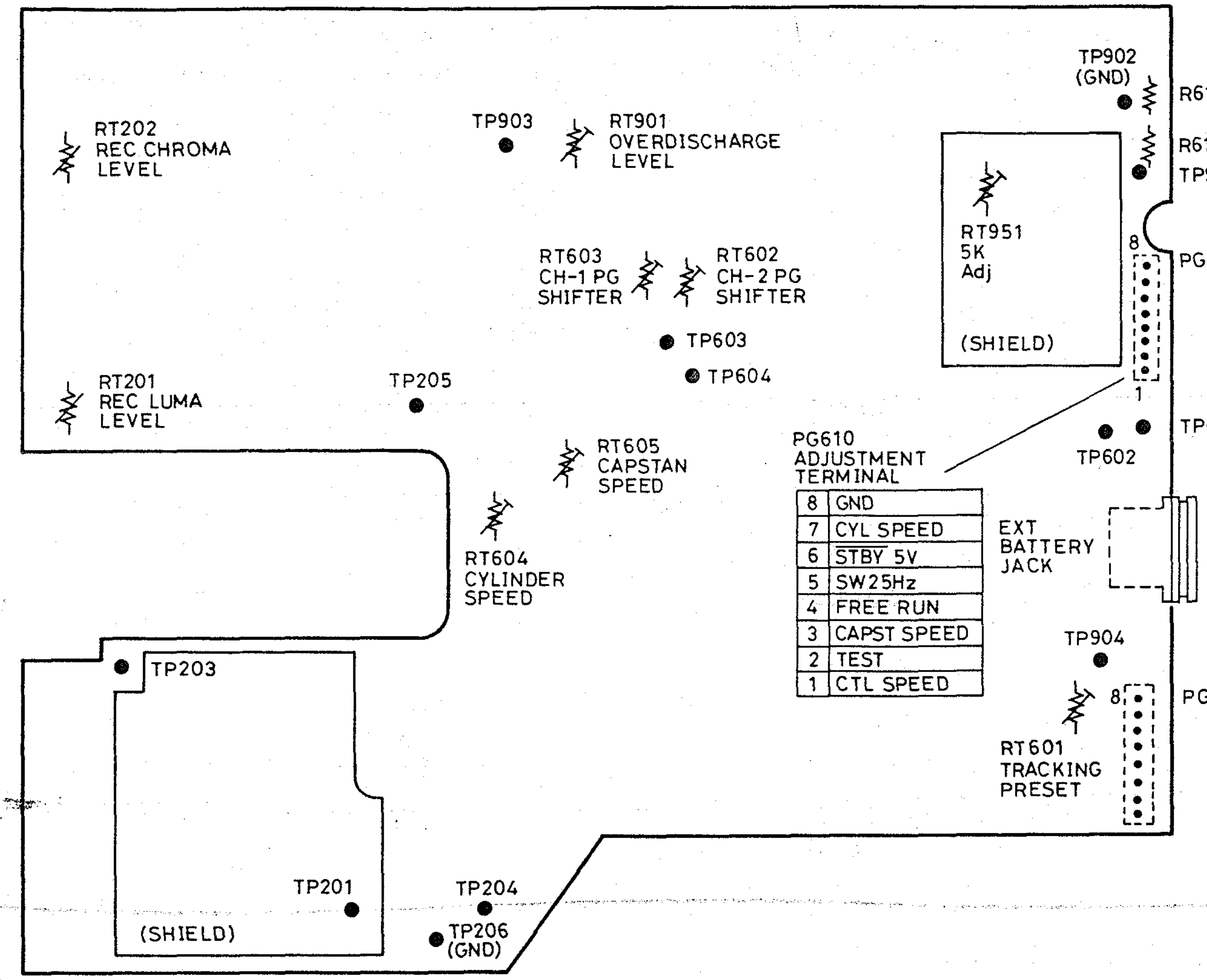
Adjustment After Replacing Process Board

1. Dynamic Focus Release
2. R and B Signal Shading Release
3. R and B Signal Tracking Release
4. Dark Shading Adjustment
5. Dark Offset Adjustment
6. AGC Maximum Gain Adjustment
7. AIC Level Adjustment
8. Chroma Carrier Level Adjustment
9. Chroma Setup Adjustment
10. R and B Signal Gain and Separation Adjustment
11. Focus Preset Adjustment
12. Dynamic Focus Preset Adjustment
13. R and B Signal Shading Preset Adjustment
14. R and B Signal Tracking Preset Adjustment
15. Focus Adjustment
16. Chroma Carrier Level Confirmation
17. Dynamic Focus Adjustment
18. R and B Signal Shading Adjustment
19. R and B Signal Tracking Adjustment
20. Burst Level Adjustment
21. Chroma Gain and Phase Adjustment
22. Low Light Chroma Gain Adjustment
23. White Balance Confirmation

Adjustment After Replacing Deflection Board and Regulator Board

1. Dynamic Focus Release
2. R and B Signal Shading Release
3. R and B Signal Tracking Release
4. Target Voltage Adjustment
5. Beam Current Adjustment
6. Dark Shading Adjustment
7. Dark Offset Adjustment
8. AIC Level Adjustment
9. Backfocus Adjustment
10. Chroma Carrier Level Adjustment
11. Vertical Size Adjustment
12. Horizontal Size and Horizontal Linearity Adjustment
13. Horizontal Center and Vertical Center Adjustment
14. Chroma Setup Adjustment
15. R and B Signal Gain and Separation Adjustment
16. Focus Preset Adjustment
17. Dynamic Focus Preset Adjustment
18. R and B Signal Shading Preset Adjustment
19. R and B Signal Tracking Preset Adjustment
20. Focus Adjustment
21. Chroma Carrier Level Confirmation
22. Dynamic Focus Adjustment
23. R and B Signal Shading Adjustment
24. R and B Signal Tracking Adjustment
25. Burst Level Adjustment
26. Chroma Gain and Phase Adjustment
27. Low Light Chroma Gain Adjustment
28. White Balance Confirmation

COMPONENT BOARDS LOCATION AND IDENTIFICATION


RT202
REC CHROMA
LEVEL
TP903
RT901
OVERDISCHARGE
LEVEL
TP902
(GND)
R612
R613
TP901
RT951
5K
Adj
(SHIELD)
8
PG610
1
RT603
CH-1 PG
SHIFTER
RT602
CH-2 PG
SHIFTER
TP603
TP604
RT201
REC LUMA
LEVEL
TP205
RT605
CAPSTAN
SPEED
RT604
CYLINDER
SPEED
PG610
ADJUSTMENT
TERMINAL
TP601
TP602
EXT
BATTERY
JACK
TP904
8
PG903
RT601
TRACKING
PRESET
TP203
TP201
(SHIELD)
TP204
TP206
(GND)

8	GND
7	CYL SPEED
6	STBY 5V
5	SW25Hz
4	FREE RUN
3	CAPST SPEED
2	TEST
1	CTL SPEED

Fig. 4-101 Main Circuit Board (Solder Side)

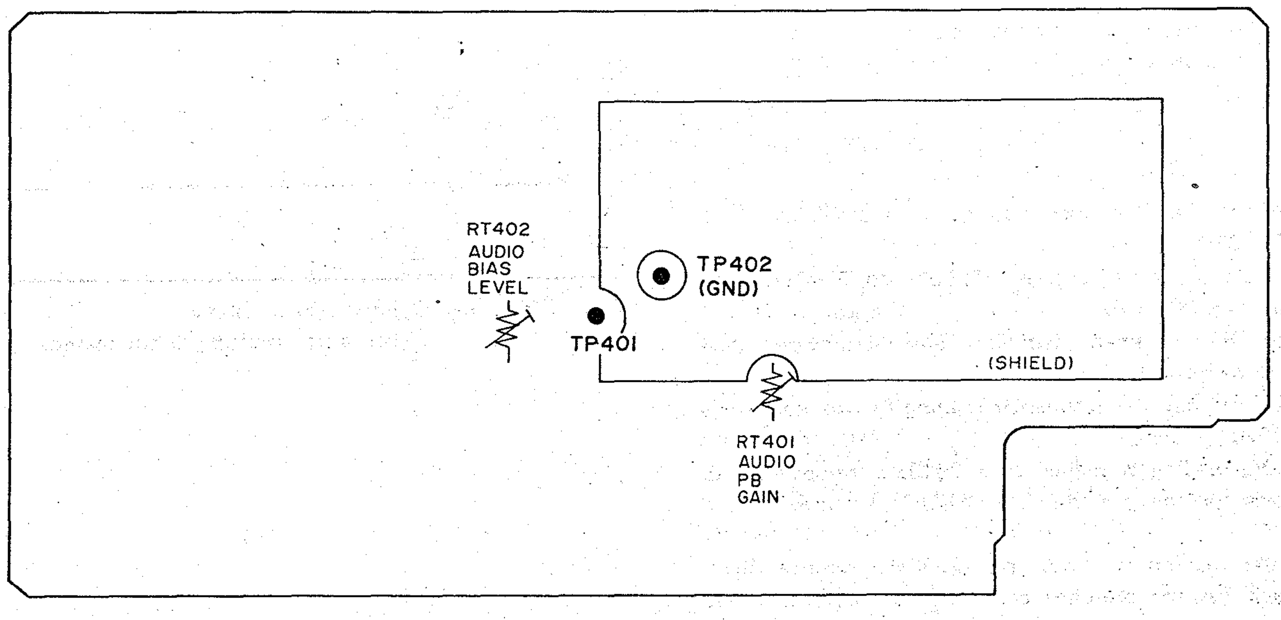

RT402
AUDIO
BIAS
LEVEL
TP402
(GND)
TP401
(SHIELD)
RT401
AUDIO
PB
GAIN

Fig. 4-102 Audio Circuit Board (Solder Side)

MAIN CIRCUIT (SWITCHING REGULATOR SECTION)

5V Adjustment (Fig. 4-101)

This adjustment sets the output voltage of the 5V Regulator precisely to 5V as the main power supply for the circuit.

Test Point:	TP901 (5V)	Main
Adjust:	RT951 (5V Adj)	Main

1. Apply the DC12V to the EXT battery jack.
2. Place the instrument in the "Record" mode.
3. Connect the DVM to TP901.
4. Adjust the 5V Adj control (RT951) for 5.3V ± 0.05V DC.

Overdischarge Level Adjustment (Fig. 4-101)

This adjustment determines the overdischarge detection level. When the battery voltage drops to a specified level, the VTR will automatically shut off.
When the overdischarge detection level is set below 11.5V the battery service life will deteriorate. Conversely, when the voltage is adjusted higher than 11.6V the usable time par charge is shortened.

Observe:	BATTERY display	Left Side
Adjust:	RT901 (OVERDISCHARGE LEVEL)	Main

1. Turn the OVERDISCHARGE LEVEL control (RT901) fully counterclockwise.
2. Apply the DC11.6V ± 10mV to the EXT battery jack terminal.
3. Place the instrument in the "Record" mode.
4. Turn the OVERDISCHARGE LEVEL control (RT901) clockwise until center and right (F) displays go off.

MAIN CIRCUIT (SERVO SECTION)

Reference Frequency Adjustment (Fig. 4-101)

This reference frequency is used to correct for fluctuations caused by unevenness between the belt, pulley, capstan motor and capstan shaft.

Test Point:	AUDIO OUTPUT (PG903-6)	Main
Adjust:	RT613 RT614	Main

1. Connect the frequency counter to AUDIO OUTPUT (PG903-6).
2. Connect a jumper between TP602 and TP901 on the main circuit board.
3. Load the instrument with an alignment tape and playback the 3kHz audio signal.
4. Confirm that the frequency reading on the counter is 3000Hz ± 15Hz.
5. If the reading is higher than 3015Hz, remove R613. Chack for the presence of R612. If not present, add R612.
6. If the reading is lower than 2985Hz, remove R612. Chack for the presence of R613. If not present, add R613.
7. Remove the jumper.

Cylinder Motor Speed Adjustment
(Figs. 4-101, 4-103, 4-104)

This adjustment locks the cylinder servo to the system signal and maintains a constant cylinder speed of 2700 rpm. When not adjusted properly, horizontal stability is degraded and/or picture noise increases.

Test Point:	TP603 (CYLINDER SPEED)	Main
Adjust:	RT604 (CYLINDER SPEED)	Main

1. Connect the oscilloscope to TP603. (0.5V/5msec.cm)
2. Load the instrument with a blank tape and place the instrument in the "Record" mode.
3. Connect the jumper between TP601 and TP901 to release the cylinder phase control.
4. Adjust the CYLINDER MOTOR SPEED control (RT604) so that the sampling pulse stands still or moves slowly on the cylinder tach pulse. (See Fig. 4-103)
5. Remove the jumper between TP601 and TP901 and confirm the sampling pulse is locked in on the trailing edge of the cylinder tach pulse. (See Fig. 4-104)

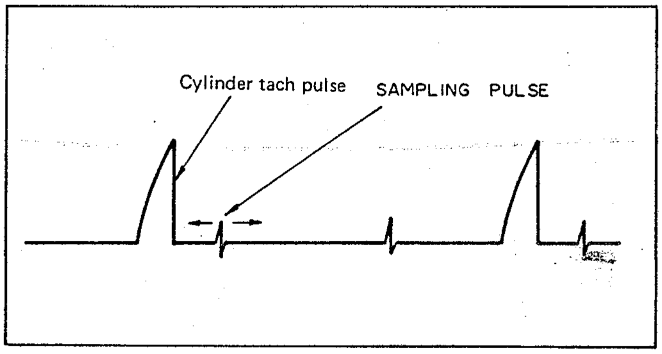


Fig. 4-103 Cylinder Motor Speed (During short circuiting)

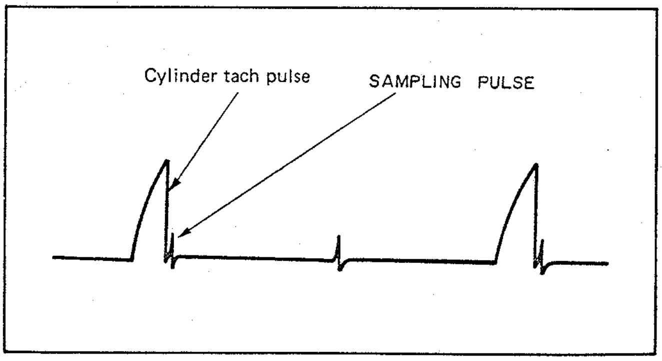


Fig. 4-104 Cylinder Motor Speed (With short-circuiting disconnected)

Capstan Motor Speed Adjustment (Figs. 4-101, 4-105, 4-106)

This adjustment locks the capstan servo to the system signals and maintains a constant tape transport speed. When not adjusted properly, the vertical stability is degraded and/or the picture noise increases.

Test Point: TP604 (CAPSTAN MOTOR SPEED) Main
Adjust: RT605 (CAPSTAN MOTOR SPEED) Main

1. Apply a colour bar signal to EVF jack.
2. Connect the oscilloscope to TP604. (0.5V/5msec.cm)
3. Load the instrument with a blank tape and place the instrument in the "Record" mode.
4. Connect a jumper between TP601 and TP901 to release the capstan phase control.
5. Adjust the CAPSTAN MOTOR SPEED control (RT605) so that the sampling pulse stands still or moves slowly on the cylinder tach pulse. (See Fig. 4-105)
6. Remove the jumper between TP601 and TP901 and confirm the sampling pulse is locked in on the trailing edge of the cylinder tach pulse. (See Fig. 4-106)

Head Switching Point Adjustment (Figs. 4-101, 4-107)

The pulse generator shifter determines the video head switching point during playback.
Misadjustment of PG Shifter may cause head switching noise in the picture and/or vertical.

Test Point: VIDEO OUT (TP904) Main
Adjust: RT603 (CH-1 PG SHIFTER) Main
RT602 (CH-2 PG SHIFTER) Main

1. Load the instrument with an alignment tape and playback the colour bar signal.
2. Connect the oscilloscope to TP904. (2V/50μsec.cm)
3. Trigger the oscilloscope at SW 25Hz. (Use TP205 on the main circuit board.)
4. Set the oscilloscope to (—) slope and adjust the CH-1 PG SHIFTER (RT603) so that the leading edge of the SW 25Hz signal is placed 6.5H (horizontal) lines before the start of vertical sync.
5. Set the oscilloscope to (+) slope and adjust the CH-2 PG SHIFTER (RT602) so that the leading edge of the SW 25Hz signal is placed 6.5H (horizontal) lines before the start of vertical sync.

Note: The waveform of CH-1 and CH-2 video signals in the diagram may be opposite depending on the alignment tape.

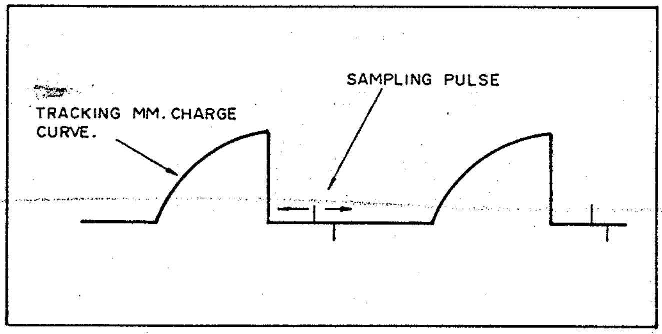


Fig. 4-105 Capstan Motor Speed (During short circuiting)

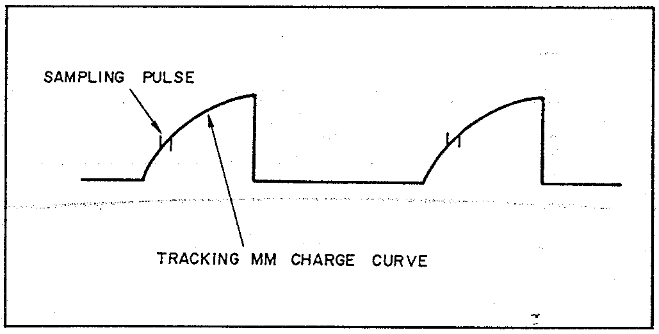


Fig. 4-106 Capstan Motor Speed (With short-circuiting disconnected)

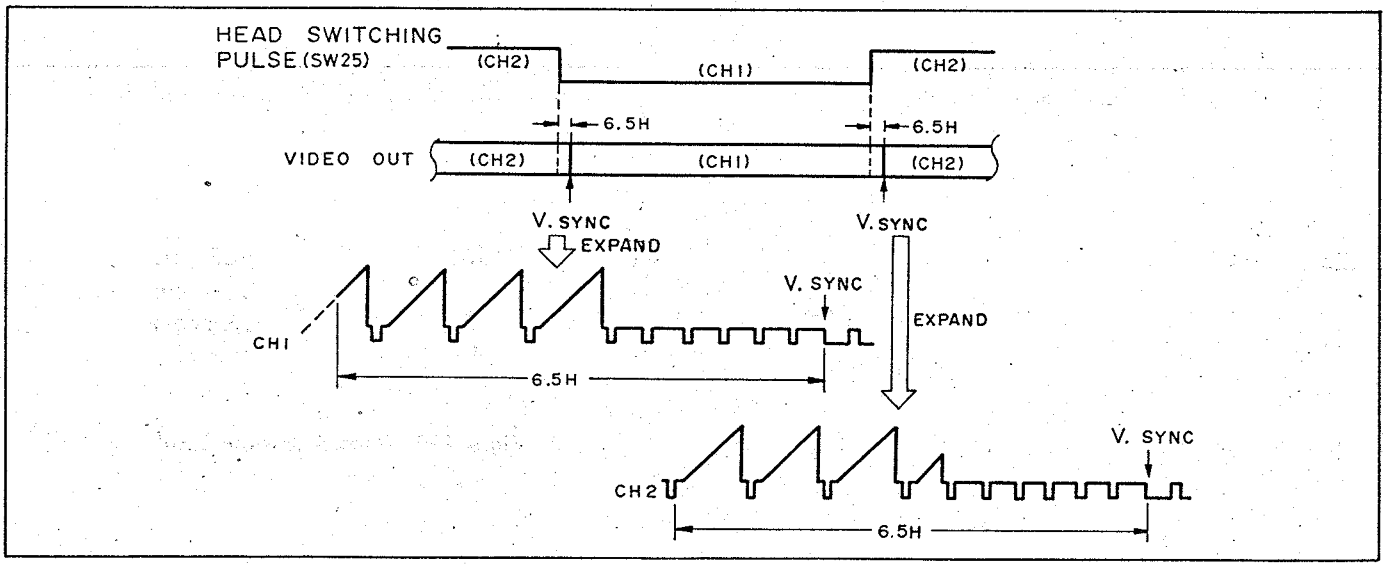


Fig. 4-107 Head Switching Point

Tracking Preset Adjustment (Figs. 4-101, 4-108)

This adjustment is performed to obtain tracking during playback of a tape recorded on the same instrument. When this adjustment is incomplete, noise may conspicuous with the tracking control placed in the detent position or noise may not be removed by the tracking control.

Test Points: VIDEO OUT (TP904) Main
TP604 (CAPSTAN SERVO) Main
Adjust: RT601 (TRACKING PRESET) Main

1. Set the TRACKING control located on the left side to the mechanical centre (centre click) position.
2. Apply a colour bar signal to the EVF jack.
3. Using a blank tape, make a recording and playback.
4. Connect the Channel-1 of oscilloscope to TP904. (1V/0.5msec.cm)
5. Connect the channel-2 of oscilloscope to TP604. (0.5V/0.5msec.cm)
6. Trigger the oscilloscope at SW 25Hz. (Use TP205 on the main circuit board.)
7. Set the oscilloscope to (–) slope.
8. Adjust the TRACKING PRESET control (RT601) so that the CTL pulse and the vertical sync back porch of the video signal match.

Record Chroma Level Adjustment
(Figs. 4-101, 4-109, 4-110, 4-111)

Optimum record colour level is regulated by this adjustment. If the record chroma level is too high, diamond beats can be seen in the screen. If the level is too low, the colour degraded.

Test Point: TP201 (REC CURRENT) Main
Adjust: RT202 (REC CHROMA LEVEL) Main

1. Apply a colour bar signal to EVF jack.
2. Adjust the input colour bar signal level for 1Vp-p measured at the video input jack.
3. Connect the oscilloscope to TP201. (10mV/20μsec.cm)
4. Trigger the oscilloscope at 12.5 Hz.(Use TP204 on Main circuit board.)
5. Load the instrument with a blank tape and place in the "Record" mode.
6. Turn the REC LUMA LEVEL control (RT201) fully counterclockwise. (As seen from solder side.)
7. Check the upper cylinder for number stamped on the top. (See Fig. 4-109)
8. Adjust REC CHROMA LEVEL control (RT202) as shown in the chart. (See Figs. 4-110, 4-111)
9. Perform the record luma level adjustment.

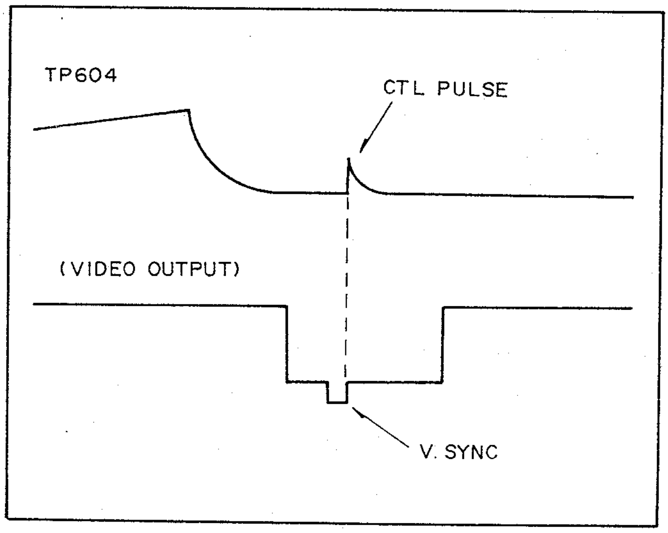


Fig. 4-108 Tracking Preset

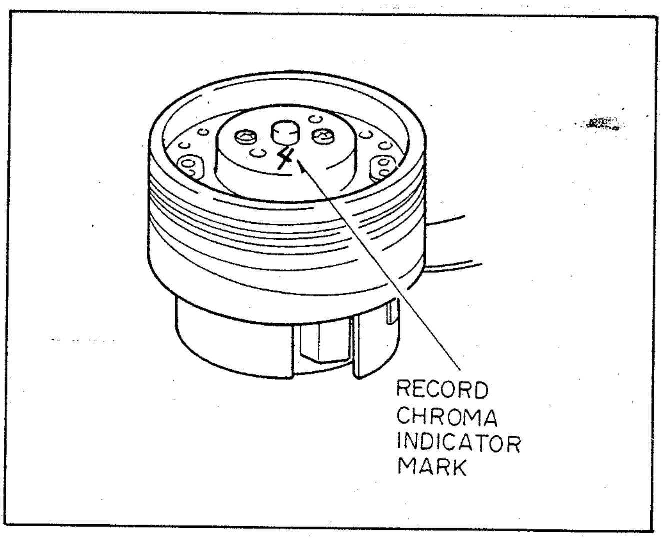


Fig. 4-109 Upper Cylinder Mark Location

MARK	LEVEL
0	30mVp-p
2	35mVp-p
4	40mVp-p

Fig. 4-110 Record Chroma Level

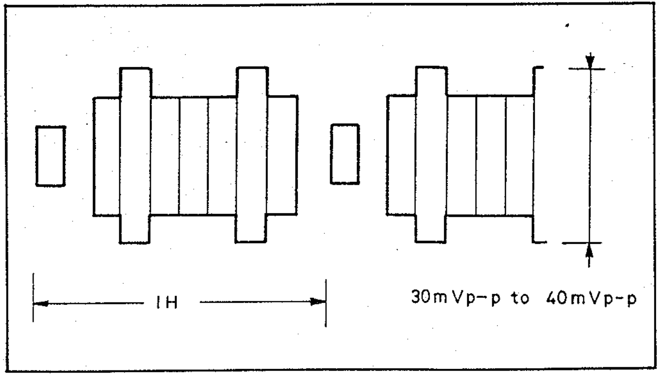


Fig. 4-111 Record Chroma Level

Record Luminance Level Adjustment (Figs. 4-101, 4-112)

Optimum record luma level is regulated by this adjustment. If the record luma level is too high, video may overload. If the level is too low, the S/N ratio deteriorate. Record chroma level should be set prior to adjusting the record luma level.

Test Point:	TP201 (REC CURRENT)	Main
Adjust:	RT201 (REC LUMA LEVEL)	Main

1. Apply a colour bar signal to EVF jack.
2. Adjust the input colour bar signal level for 1Vp-p measured at the video input jack.
3. Connect the oscilloscope to TP201. (50mV/20μsec.cm)
4. Load the instrument with a blank tape and place in the "Record" mode.
5. Adjust REC LUMA LEVEL control (RT201) for 130mVp-p ± 10mV.

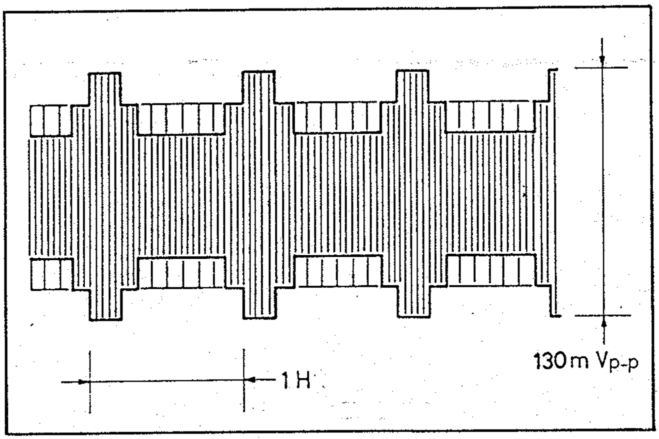


Fig. 4-112 Record Luminance Level

AUDIO CIRCUIT

Audio Playback Gain Adjustment

This adjustment sets the output level of the audio signal to the specified level.

Test Points:	PG903-6	(AUDIO OUTPUT)	Main
	PG903-4	(AUDIO GND)	Main
Adjust:	RT401	(AUDIO PB GAIN)	Audio

1. Connect the millivoltmeter to PG903-6. (Used GND PG903-4)
2. Load the instrument with an alignment tape and playback a 1kHz audio signal.
3. Adjust the AUDIO PB GAIN control (RT401) for 90mVrms.

Audio Bias Level Adjustment

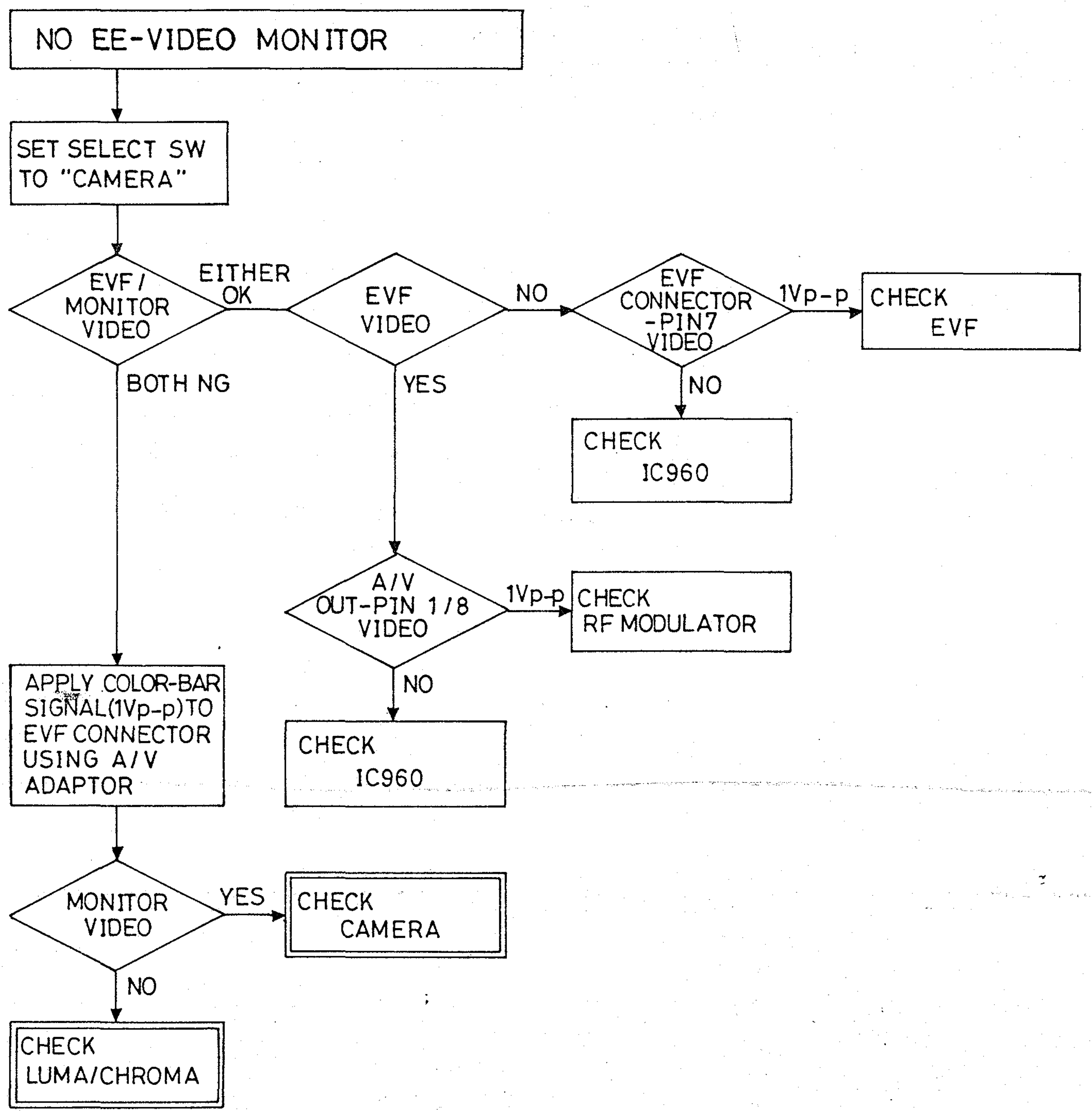
This adjustment optimizes the audio record bias. When the audio record bias is too low, high frequencies are increased resulting in distortion. When the level is too high, high frequences are attenuated.

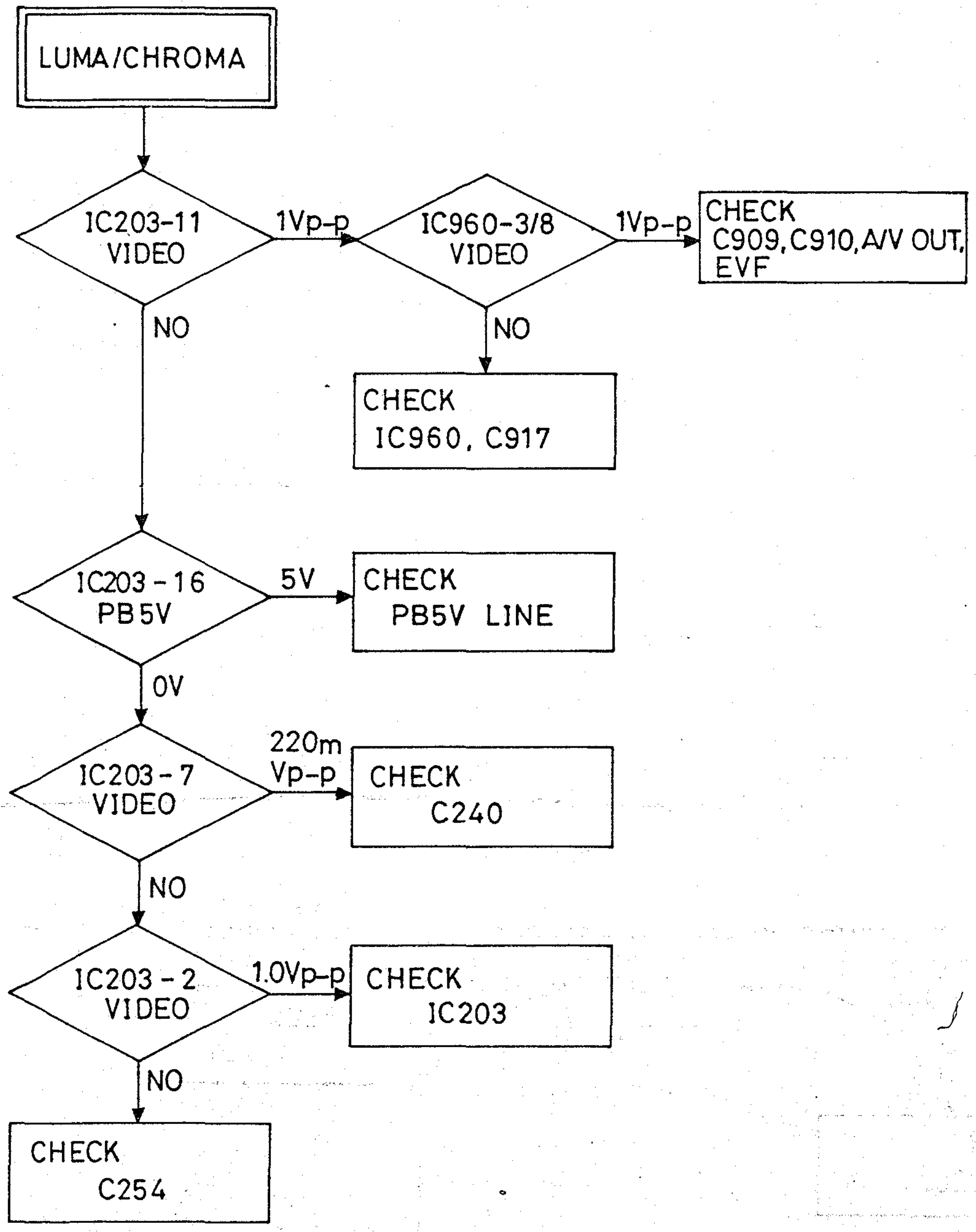
Test Points:	TP401 (REC BIAS)	Audio
	TP402 (BIAS GND)	Audio
Adjust:	RT402 (AUDIO BIAS LEVEL)	Audio

1. Connect the millivoltmeter to TP401. (Used GND TP402)
2. Load the instrument with a blank tape and place in the "Record" mode.
3. Adjust AUDIO BIAS LEVEL control (RT402) for 2.6mV ± 0.1mVrms.

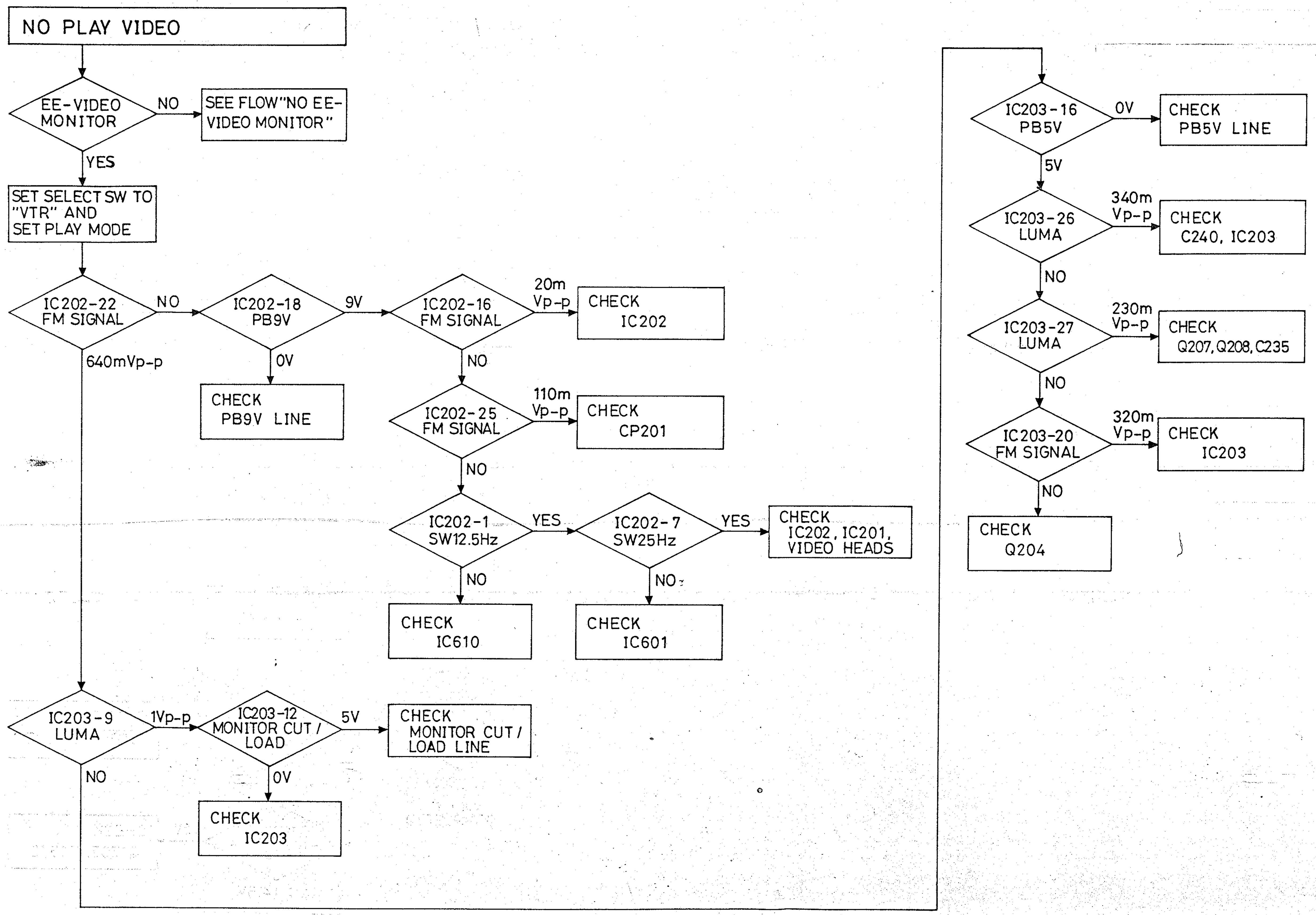
MEMO

1. No EE-video monitor

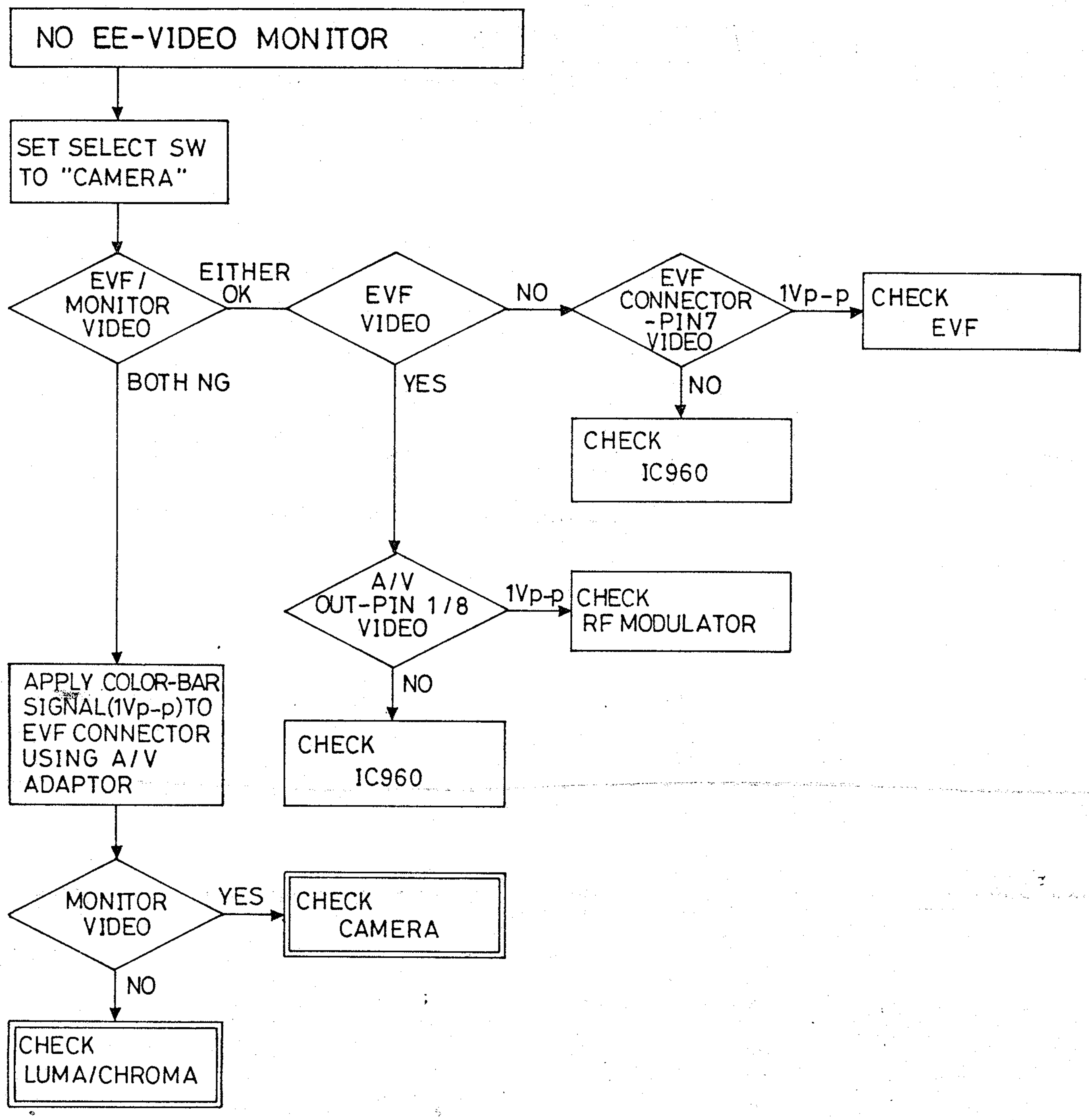

NO EE-VIDEO MONITOR
SET SELECT SW TO "CAMERA"
EVF / MONITOR VIDEO
EITHER OK
BOTH NG
EVF VIDEO
NO
YES
EVF CONNECTOR -PIN7 VIDEO
1Vp-p
CHECK EVF
NO
CHECK IC960
A/V OUT-PIN 1/8 VIDEO
1Vp-p
CHECK RF MODULATOR
NO
CHECK IC960
APPLY COLOR-BAR SIGNAL(1Vp-p)TO EVF CONNECTOR USING A/V ADAPTOR
MONITOR VIDEO
YES
CHECK CAMERA
NO
CHECK LUMA/CHROMA

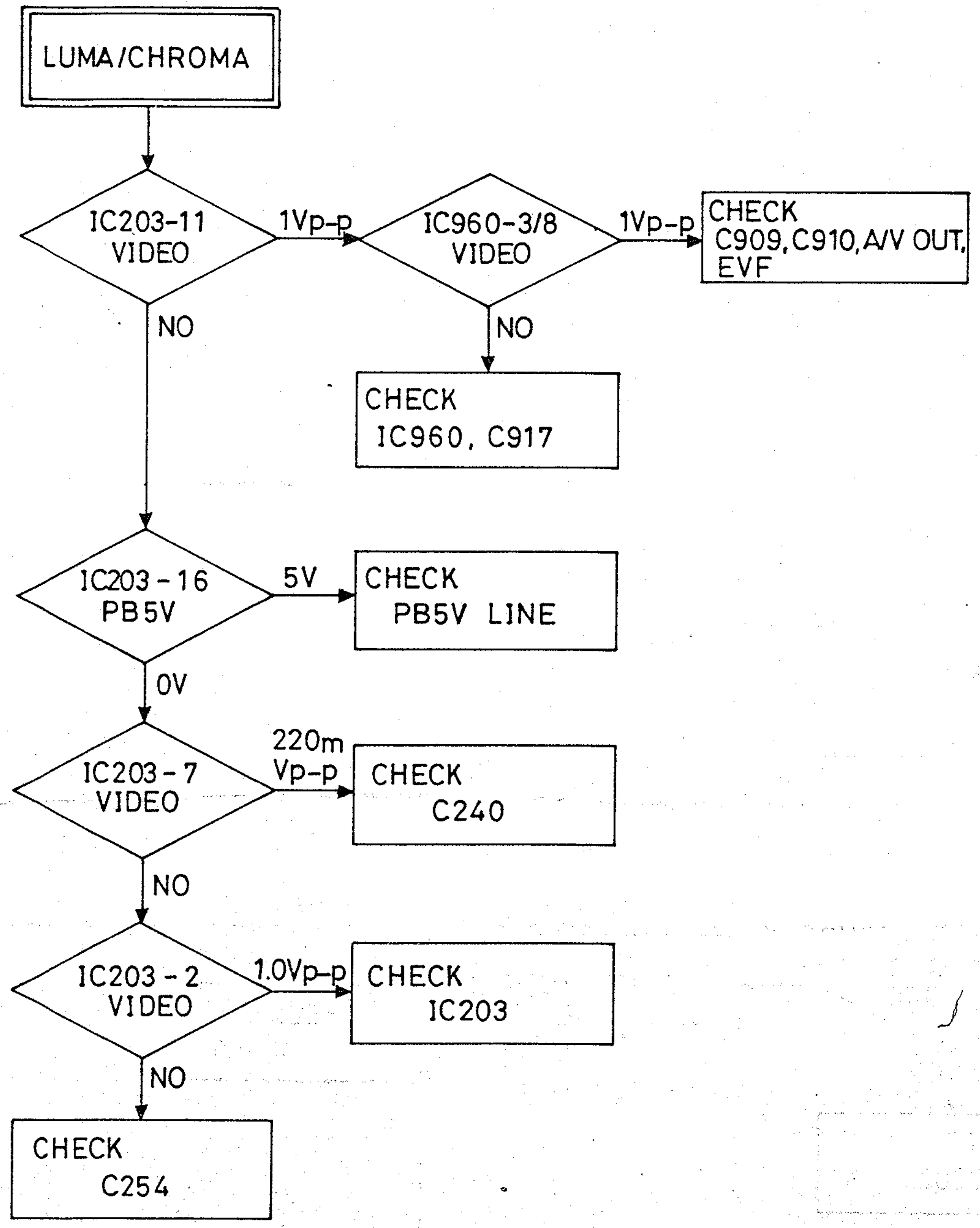

LUMA/CHROMA
IC203-11 VIDEO
1Vp-p
IC960-3/8 VIDEO
1Vp-p
CHECK C909, C910, A/V OUT, EVF
NO
CHECK IC960, C917
NO
IC203-16 PB5V
5V
CHECK PB5V LINE
0V
IC203-7 VIDEO
220m Vp-p
CHECK C240
NO
IC203-2 VIDEO
1.0Vp-p
CHECK IC203
NO
CHECK C254

4. No play video

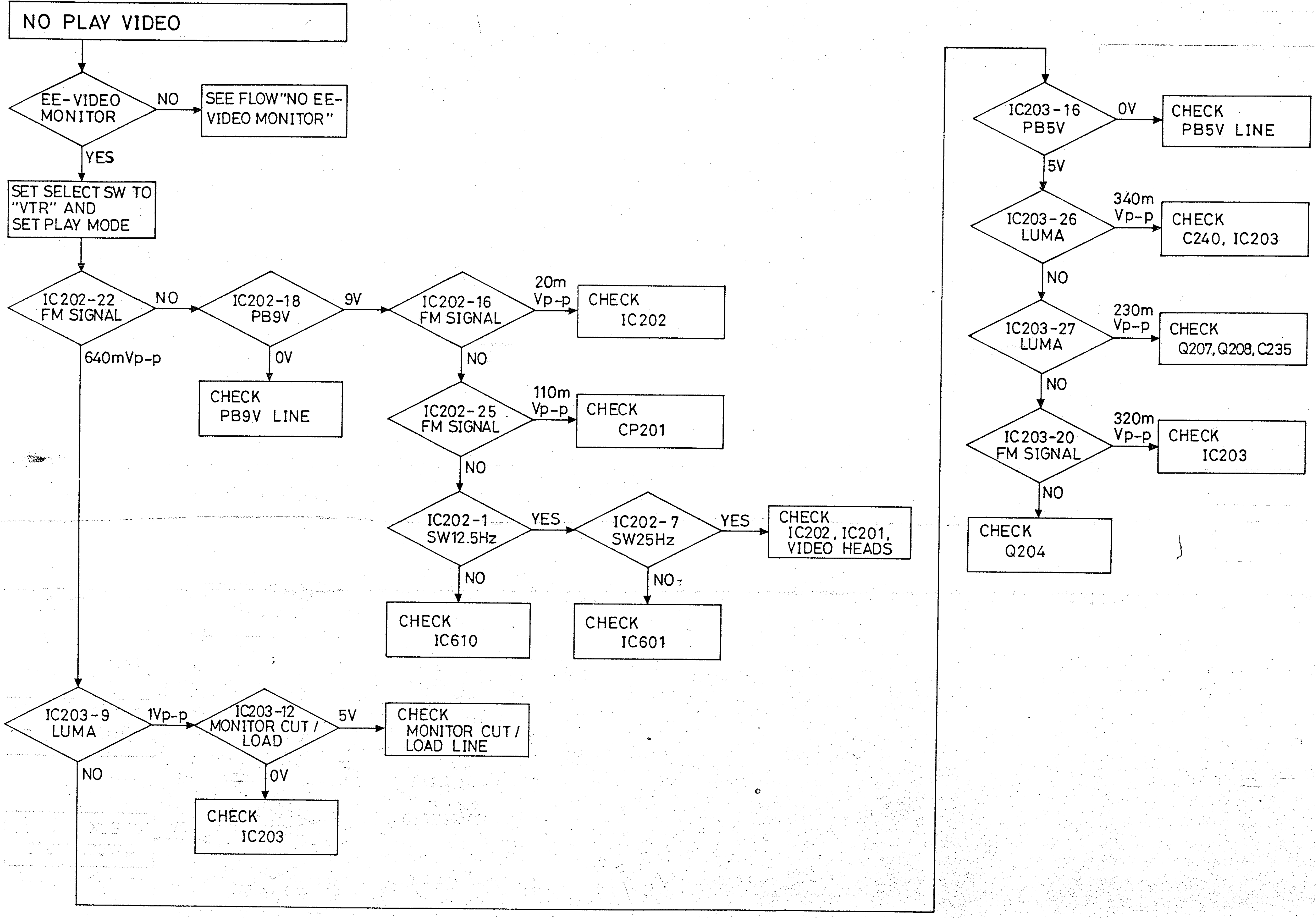

NO PLAY VIDEO
EE-VIDEO MONITOR
NO
SEE FLOW "NO EE-VIDEO MONITOR"
YES
SET SELECT SW TO "VTR" AND SET PLAY MODE
IC202-22 FM SIGNAL
NO
IC202-18 PB9V
9V
IC202-16 FM SIGNAL
20m Vp-p
CHECK IC202
640mVp-p
0V
CHECK PB9V LINE
NO
IC202-25 FM SIGNAL
110m Vp-p
CHECK CP201
NO
IC202-1 SW12.5Hz
YES
IC202-7 SW25Hz
YES
CHECK IC202, IC201, VIDEO HEADS
NO
CHECK IC610
NO
CHECK IC601
IC203-9 LUMA
1Vp-p
IC203-12 MONITOR CUT / LOAD
5V
CHECK MONITOR CUT / LOAD LINE
NO
0V
CHECK IC203
IC203-16 PB5V
0V
CHECK PB5V LINE
5V
IC203-26 LUMA
340m Vp-p
CHECK C240, IC203
NO
IC203-27 LUMA
230m Vp-p
CHECK Q207, Q208, C235
NO
IC203-20 FM SIGNAL
320m Vp-p
CHECK IC203
NO
CHECK Q204

1. No EE-video monitor

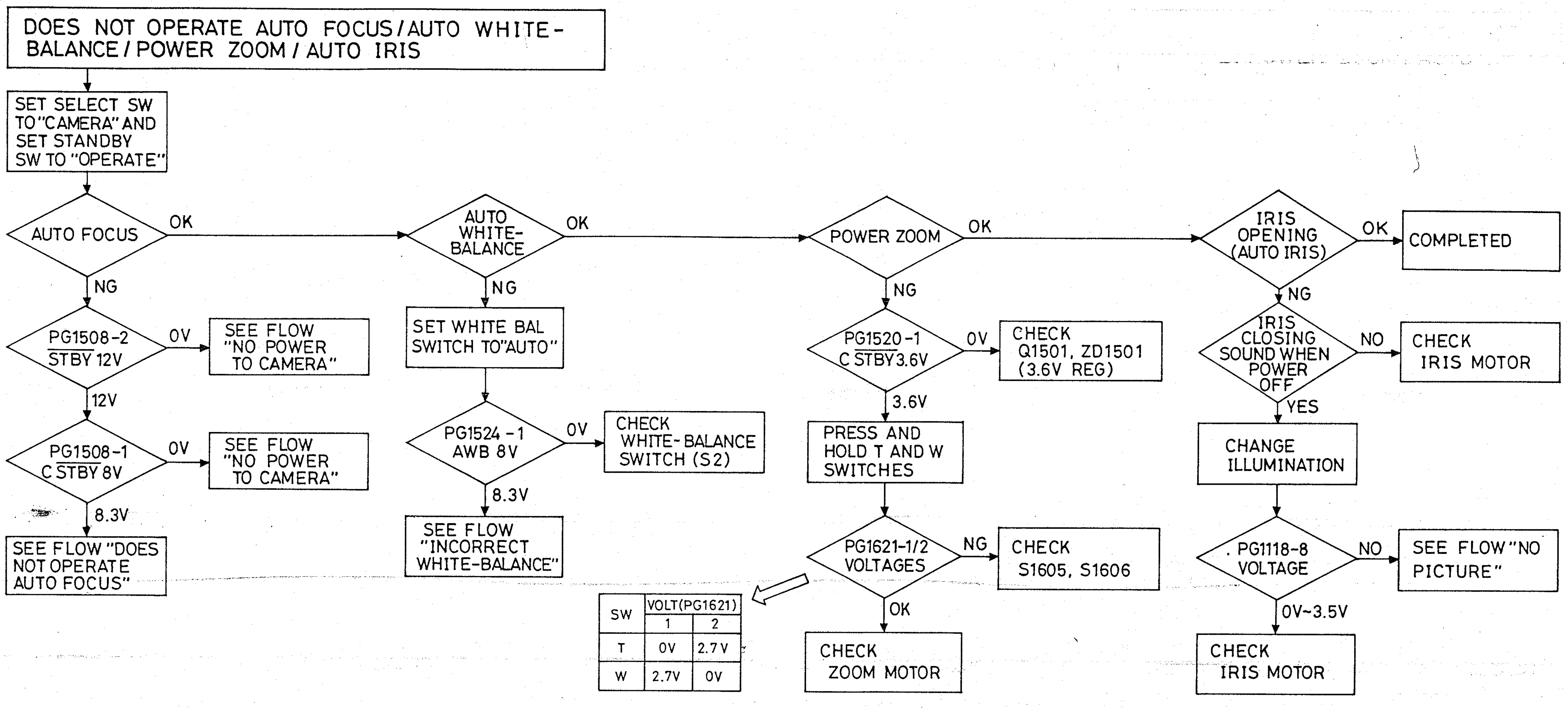

NO EE-VIDEO MONITOR
SET SELECT SW TO "CAMERA"
EVF / MONITOR VIDEO
EITHER OK
BOTH NG
EVF VIDEO
NO
YES
EVF CONNECTOR -PIN7 VIDEO
1Vp-p
CHECK EVF
NO
CHECK IC960
A/V OUT-PIN 1/8 VIDEO
1Vp-p
CHECK RF MODULATOR
NO
CHECK IC960
APPLY COLOR-BAR SIGNAL(1Vp-p)TO EVF CONNECTOR USING A/V ADAPTOR
MONITOR VIDEO
YES
CHECK CAMERA
NO
CHECK LUMA/CHROMA


LUMA/CHROMA
IC203-11 VIDEO
1Vp-p
IC960-3/8 VIDEO
1Vp-p
CHECK C909, C910, A/V OUT, EVF
NO
CHECK IC960, C917
NO
IC203-16 PB5V
5V
CHECK PB5V LINE
0V
IC203-7 VIDEO
220m Vp-p
CHECK C240
NO
IC203-2 VIDEO
1.0Vp-p
CHECK IC203
NO
CHECK C254

4. No play video

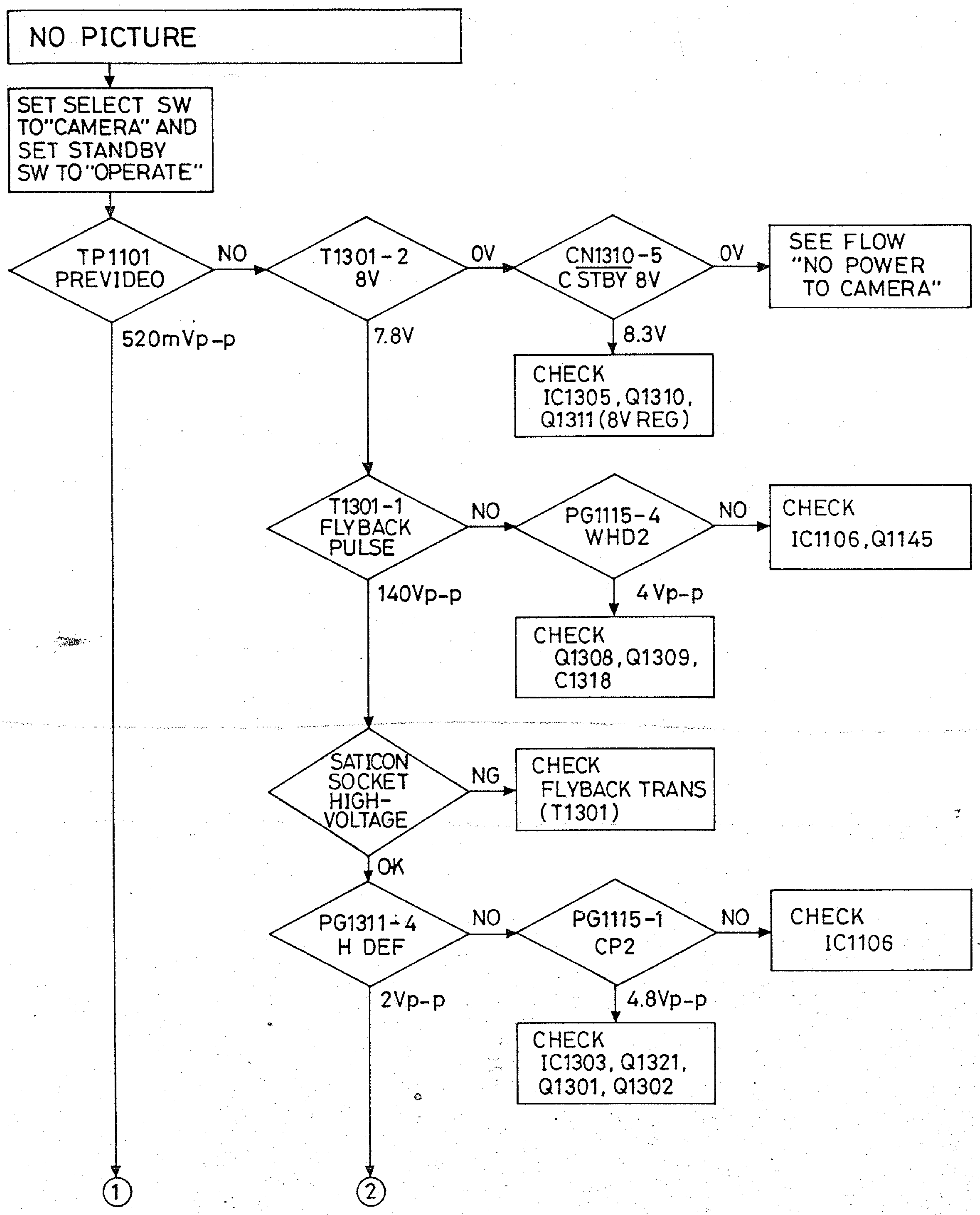

NO PLAY VIDEO
EE-VIDEO MONITOR
NO
SEE FLOW "NO EE-VIDEO MONITOR"
YES
SET SELECT SW TO "VTR" AND SET PLAY MODE
IC202-22 FM SIGNAL
NO
IC202-18 PB9V
9V
IC202-16 FM SIGNAL
20m Vp-p
CHECK IC202
0V
CHECK PB9V LINE
NO
IC202-25 FM SIGNAL
110m Vp-p
CHECK CP201
NO
IC202-1 SW12.5Hz
YES
IC202-7 SW25Hz
YES
CHECK IC202, IC201, VIDEO HEADS
NO
CHECK IC610
NO
CHECK IC601
640mVp-p
IC203-9 LUMA
1Vp-p
IC203-12 MONITOR CUT / LOAD
5V
CHECK MONITOR CUT / LOAD LINE
0V
CHECK IC203
NO
IC203-16 PB5V
0V
CHECK PB5V LINE
5V
IC203-26 LUMA
340m Vp-p
CHECK C240, IC203
NO
IC203-27 LUMA
230m Vp-p
CHECK Q207, Q208, C235
NO
IC203-20 FM SIGNAL
320m Vp-p
CHECK IC203
NO
CHECK Q204

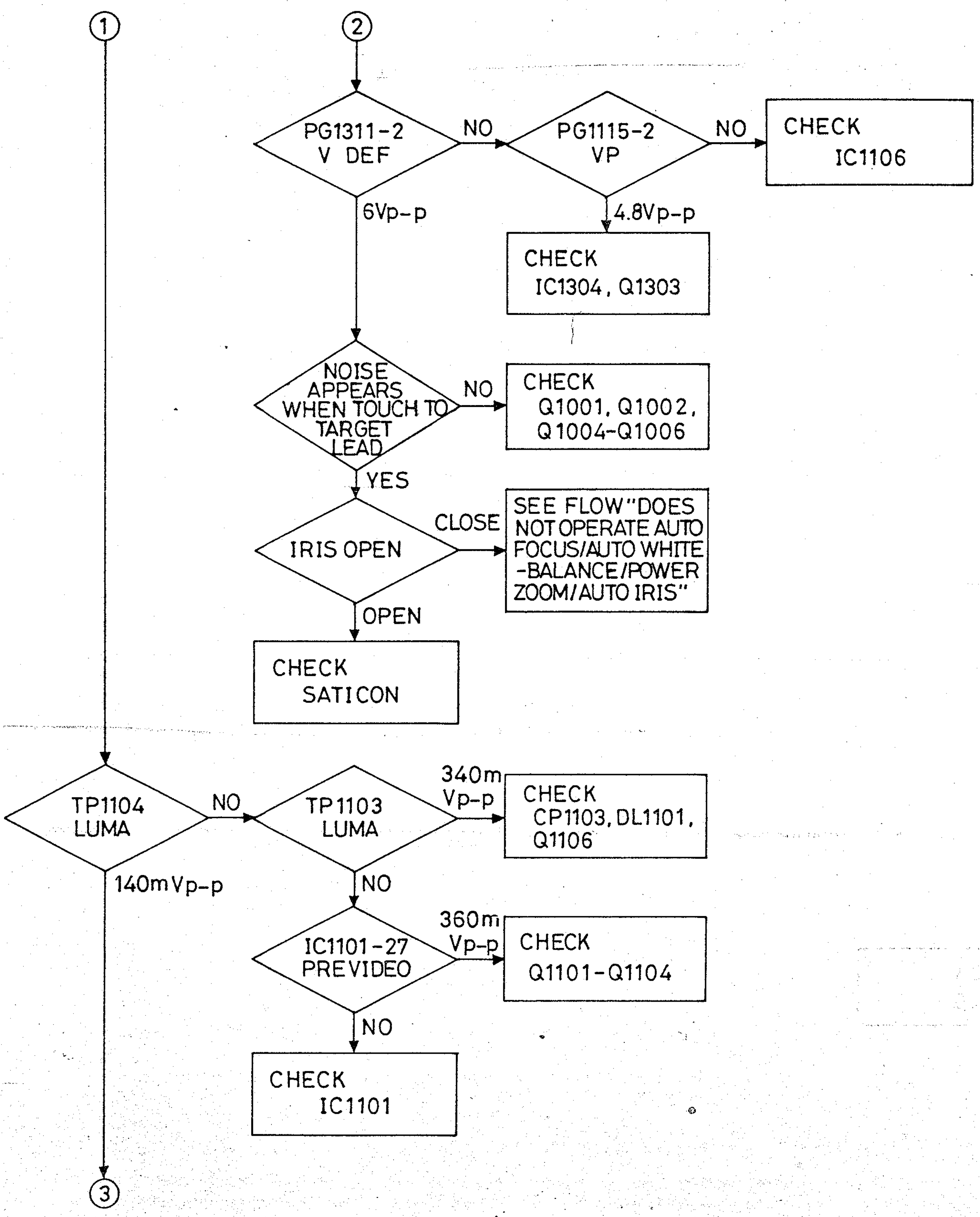
7. Does not operate auto focus/auto white-balance/power zoom/auto iris

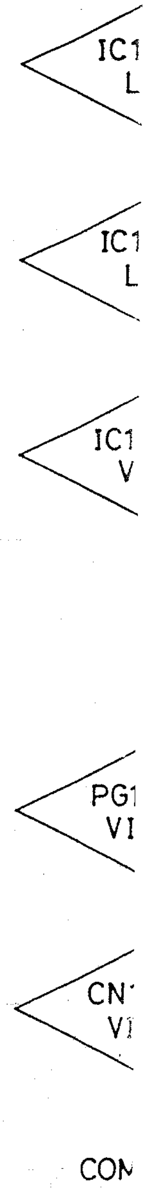

DOES NOT OPERATE AUTO FOCUS / AUTO WHITE-BALANCE / POWER ZOOM / AUTO IRIS
SET SELECT SW TO "CAMERA" AND SET STANDBY SW TO "OPERATE"
AUTO FOCUS
OK
NG
PG1508-2 STBY 12V
0V
SEE FLOW "NO POWER TO CAMERA"
12V
PG1508-1 C STBY 8V
0V
SEE FLOW "NO POWER TO CAMERA"
8.3V
SEE FLOW "DOES NOT OPERATE AUTO FOCUS"
AUTO WHITE-BALANCE
OK
NG
SET WHITE BAL SWITCH TO "AUTO"
PG1524-1 AWB 8V
0V
CHECK WHITE-BALANCE SWITCH (S2)
8.3V
SEE FLOW "INCORRECT WHITE-BALANCE"
POWER ZOOM
OK
NG
PG1520-1 C STBY 3.6V
0V
CHECK Q1501, ZD1501 (3.6V REG)
3.6V
PRESS AND HOLD T AND W SWITCHES
PG1621-1/2 VOLTAGES
NG
CHECK S1605, S1606
OK
CHECK ZOOM MOTOR
IRIS OPENING (AUTO IRIS)
OK
COMPLETED
NG
IRIS CLOSING SOUND WHEN POWER OFF
NO
CHECK IRIS MOTOR
YES
CHANGE ILLUMINATION
PG1118-8 VOLTAGE
NO
SEE FLOW "NO PICTURE"
0V~3.5V
CHECK IRIS MOTOR

SW	VOLT(PG1621) 1	VOLT(PG1621) 2
T	0V	2.7V
W	2.7V	0V

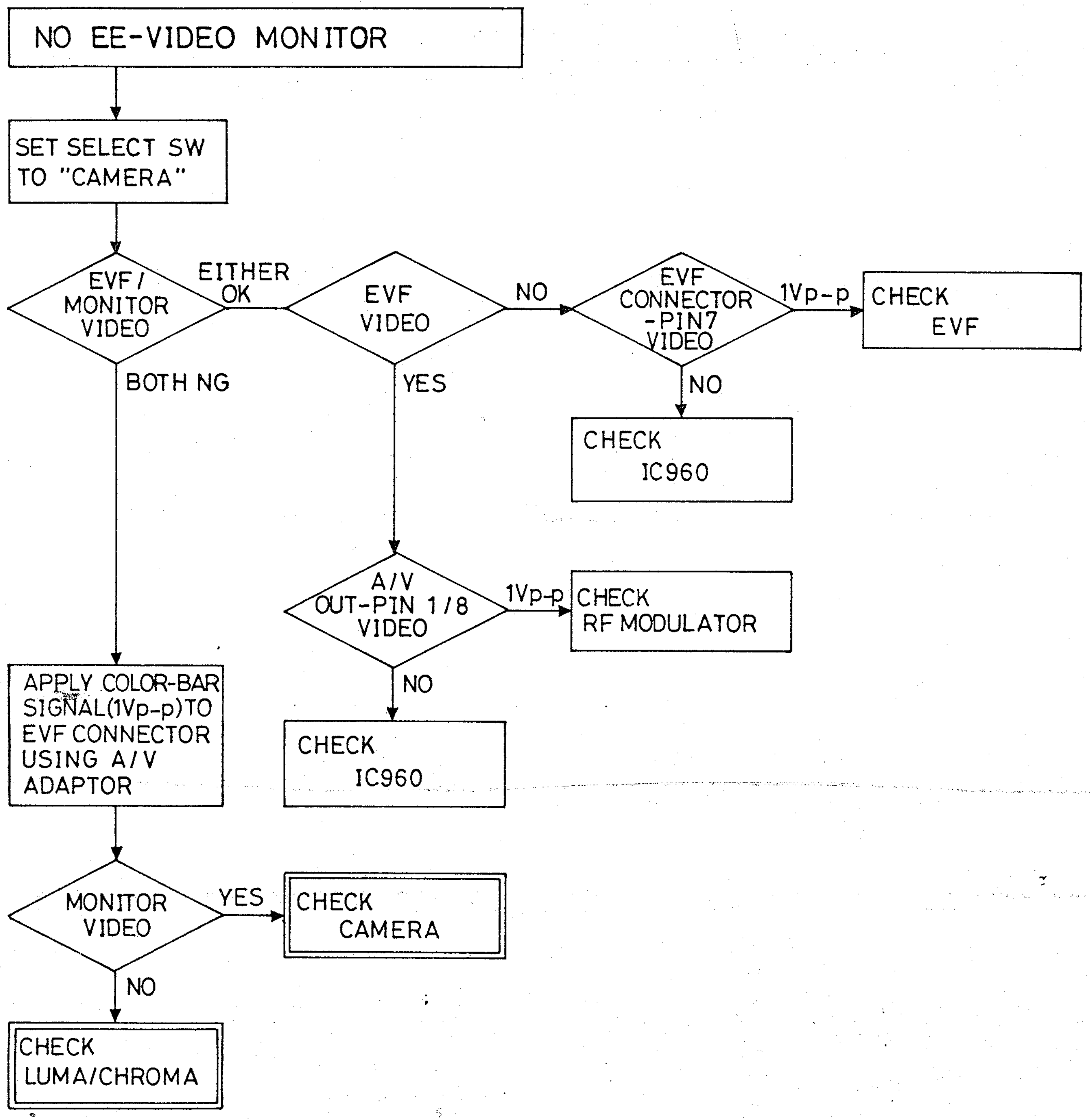
9. No picture

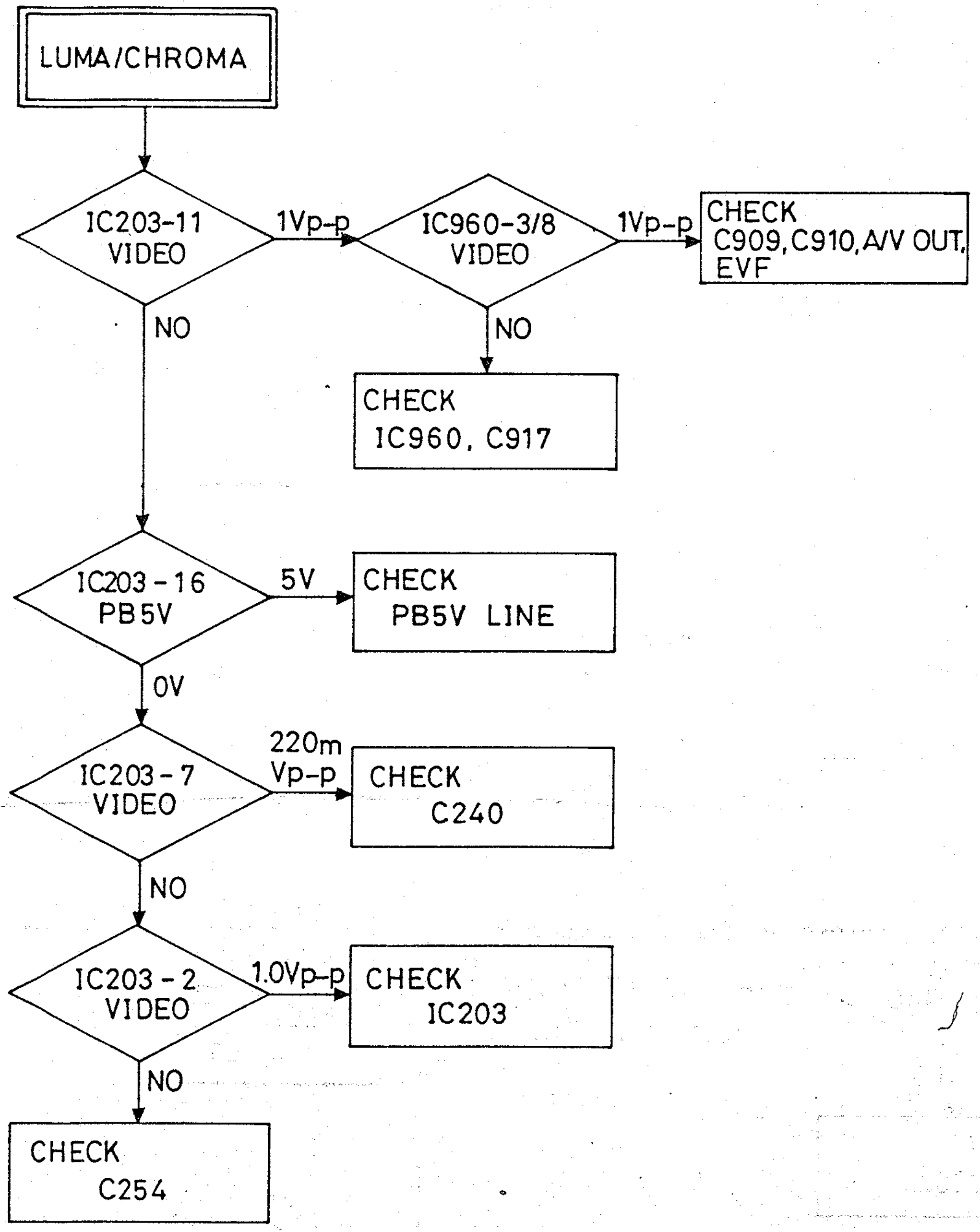

NO PICTURE
SET SELECT SW TO"CAMERA" AND SET STANDBY SW TO"OPERATE"
TP1101 PREVIDEO
NO
520mVp-p
T1301-2 8V
0V
7.8V
CN1310-5 C STBY 8V
0V
8.3V
SEE FLOW "NO POWER TO CAMERA"
CHECK IC1305, Q1310, Q1311 (8V REG)
T1301-1 FLYBACK PULSE
NO
140Vp-p
PG1115-4 WHD2
NO
4 Vp-p
CHECK IC1106, Q1145
CHECK Q1308, Q1309, C1318
SATICON SOCKET HIGH-VOLTAGE
NG
OK
CHECK FLYBACK TRANS (T1301)
PG1311-4 H DEF
NO
2Vp-p
PG1115-1 CP2
NO
4.8Vp-p
CHECK IC1106
CHECK IC1303, Q1321, Q1301, Q1302
①
②


①
②
PG1311-2 V DEF
NO
6Vp-p
PG1115-2 VP
NO
4.8Vp-p
CHECK IC1106
CHECK IC1304, Q1303
NOISE APPEARS WHEN TOUCH TO TARGET LEAD
NO
YES
CHECK Q1001, Q1002, Q1004-Q1006
IRIS OPEN
CLOSE
OPEN
SEE FLOW"DOES NOT OPERATE AUTO FOCUS/AUTO WHITE-BALANCE/POWER ZOOM/AUTO IRIS"
CHECK SATICON
TP1104 LUMA
NO
140mVp-p
TP1103 LUMA
340m Vp-p
NO
CHECK CP1103, DL1101, Q1106
IC1101-27 PREVIDEO
360m Vp-p
NO
CHECK Q1101-Q1104
CHECK IC1101
③

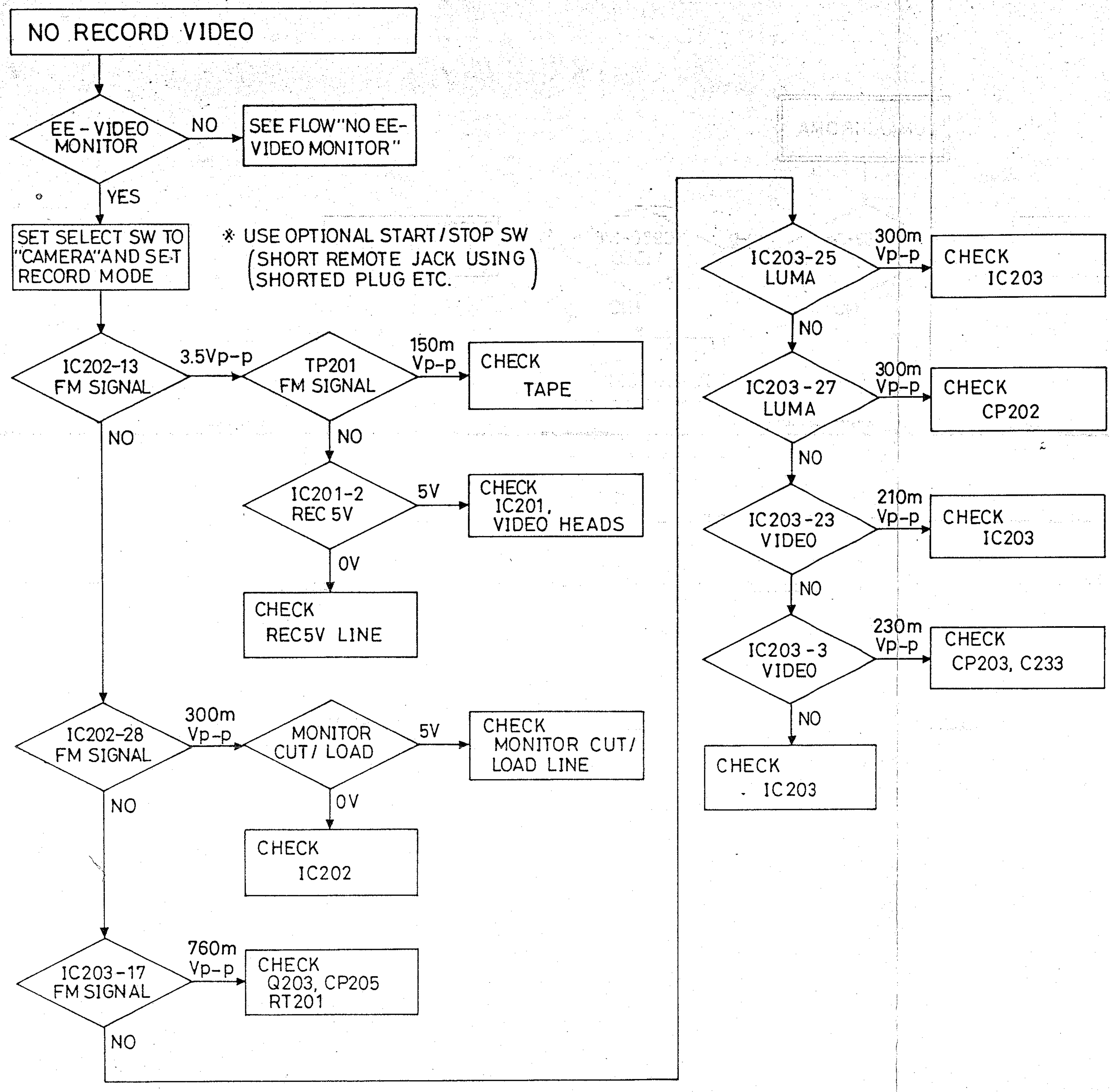

IC1
L
IC1
L
IC1
V
PG1
VI
CN
VI
CON

1. No EE-video monitor

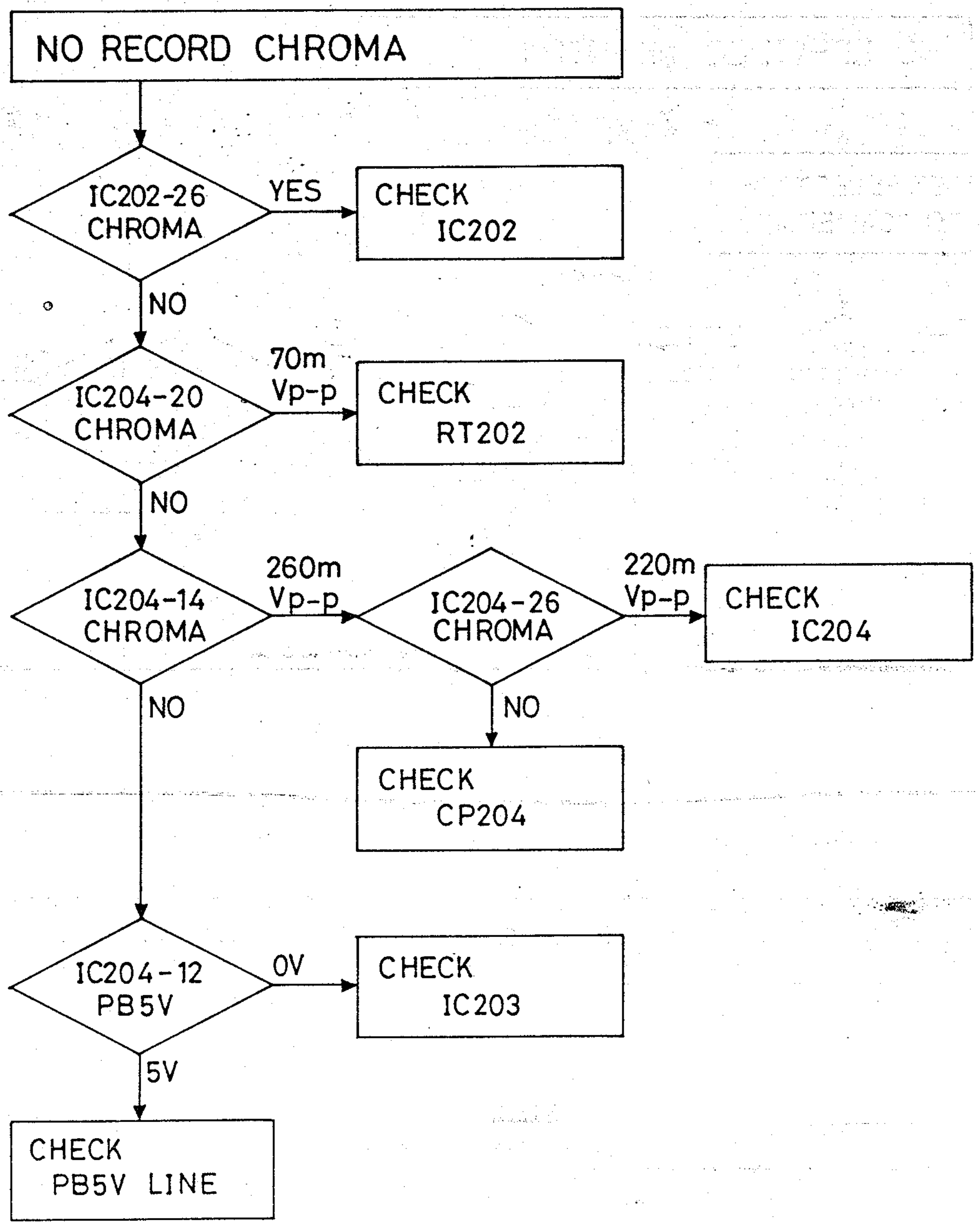

NO EE-VIDEO MONITOR
SET SELECT SW TO "CAMERA"
EVF / MONITOR VIDEO
EITHER OK
BOTH NG
EVF VIDEO
NO
YES
EVF CONNECTOR -PIN7 VIDEO
1Vp-p
CHECK EVF
NO
CHECK IC960
A/V OUT-PIN 1/8 VIDEO
1Vp-p
CHECK RF MODULATOR
NO
CHECK IC960
APPLY COLOR-BAR SIGNAL(1Vp-p)TO EVF CONNECTOR USING A/V ADAPTOR
MONITOR VIDEO
YES
CHECK CAMERA
NO
CHECK LUMA/CHROMA


LUMA/CHROMA
IC203-11 VIDEO
1Vp-p
IC960-3/8 VIDEO
1Vp-p
CHECK C909, C910, A/V OUT, EVF
NO
NO
CHECK IC960, C917
IC203-16 PB5V
5V
CHECK PB5V LINE
0V
IC203-7 VIDEO
220m Vp-p
CHECK C240
NO
IC203-2 VIDEO
1.0Vp-p
CHECK IC203
NO
CHECK C254

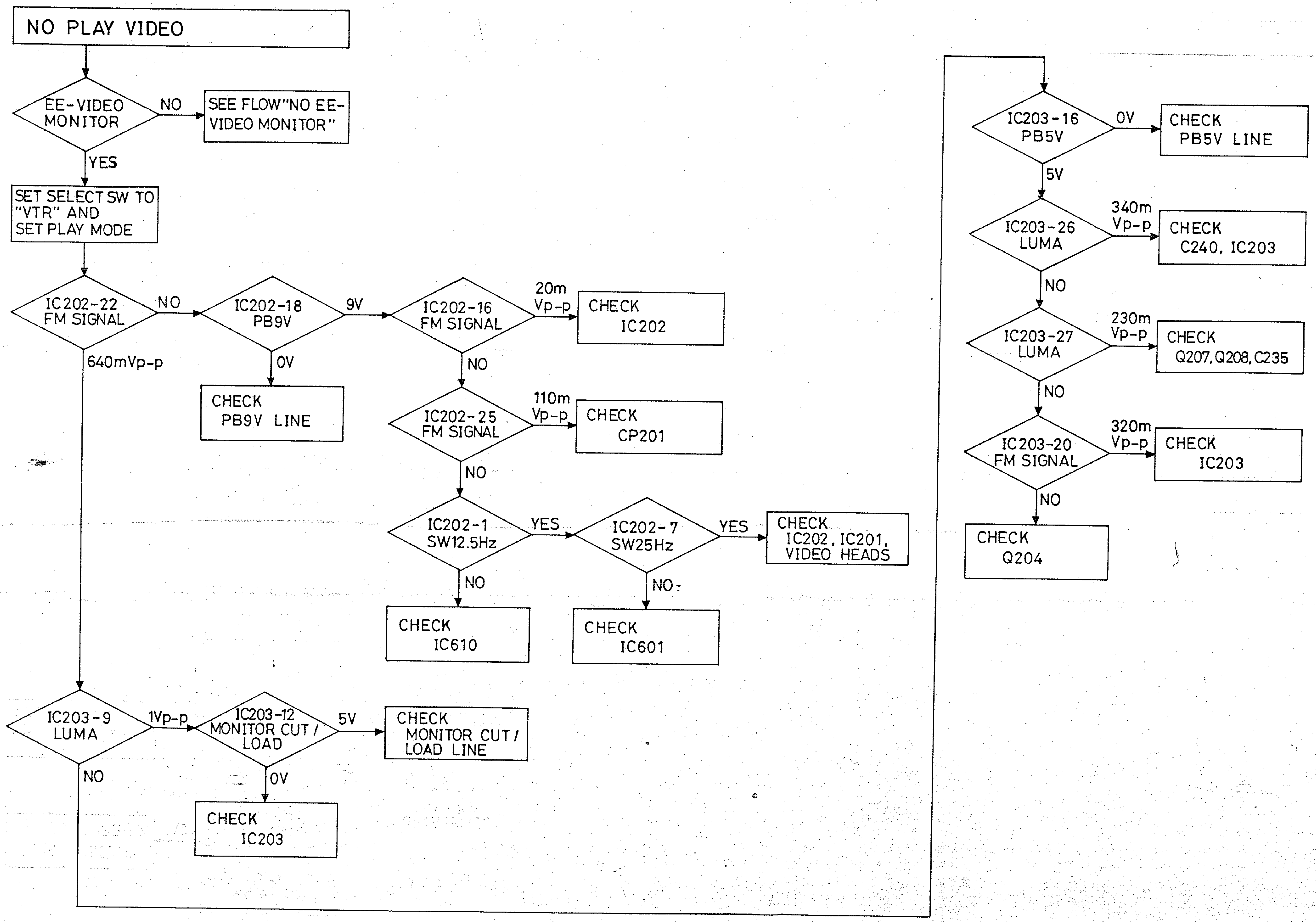
2. No record video


NO RECORD VIDEO
EE-VIDEO MONITOR
NO
SEE FLOW "NO EE-VIDEO MONITOR"
YES
SET SELECT SW TO "CAMERA" AND SET RECORD MODE
※ USE OPTIONAL START/STOP SW (SHORT REMOTE JACK USING SHORTED PLUG ETC.)
IC202-13 FM SIGNAL
3.5Vp-p
TP201 FM SIGNAL
150m Vp-p
CHECK TAPE
NO
IC201-2 REC 5V
5V
CHECK IC201, VIDEO HEADS
0V
CHECK REC5V LINE
NO
IC202-28 FM SIGNAL
300m Vp-p
MONITOR CUT/LOAD
5V
CHECK MONITOR CUT/LOAD LINE
0V
CHECK IC202
NO
IC203-17 FM SIGNAL
760m Vp-p
CHECK Q203, CP205 RT201
NO
IC203-25 LUMA
300m Vp-p
CHECK IC203
NO
IC203-27 LUMA
300m Vp-p
CHECK CP202
NO
IC203-23 VIDEO
210m Vp-p
CHECK IC203
NO
IC203-3 VIDEO
230m Vp-p
CHECK CP203, C233
NO
CHECK IC203

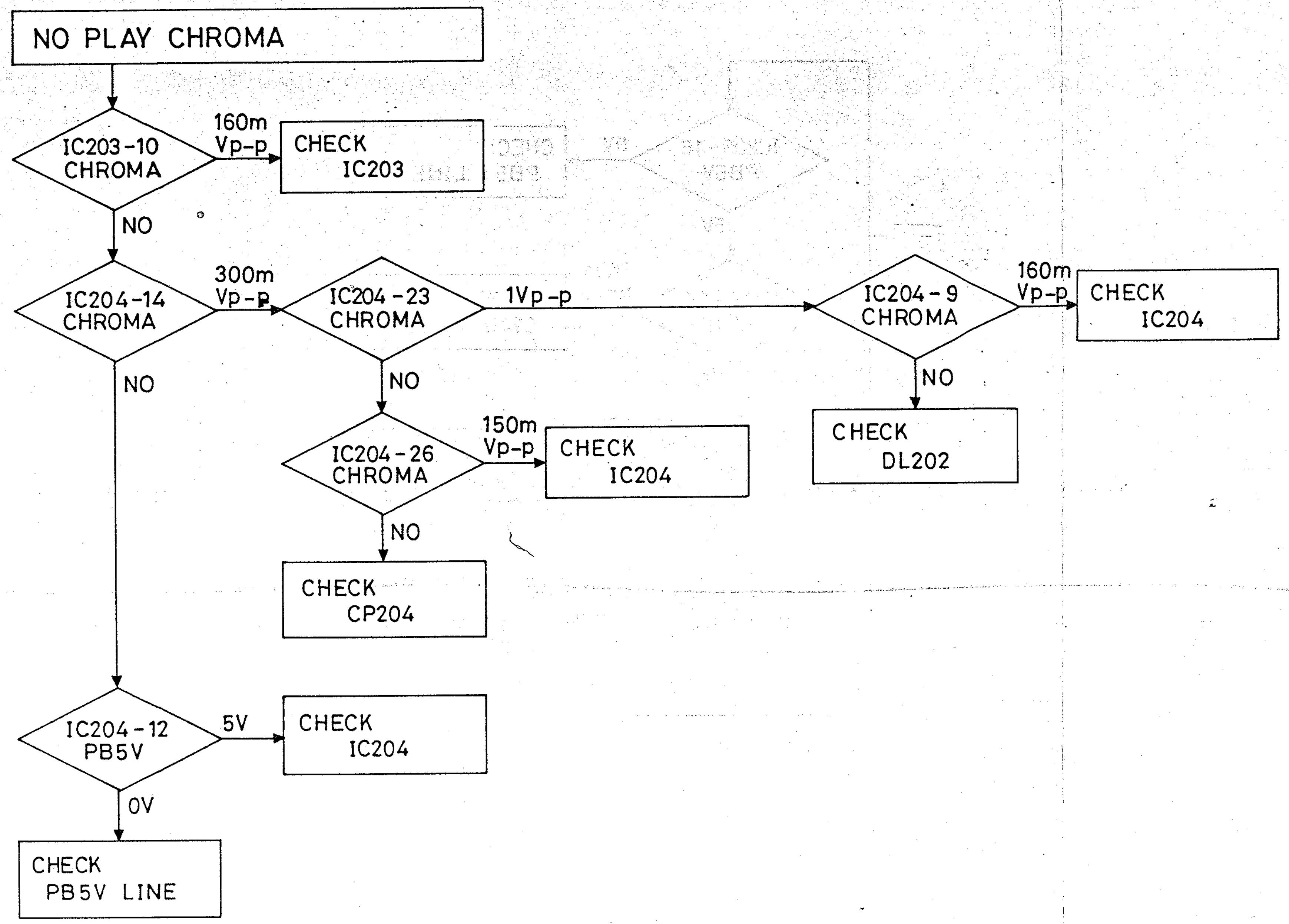
3. No record camera


NO RECORD CHROMA
IC202-26 CHROMA
YES
CHECK IC202
NO
IC204-20 CHROMA
70m Vp-p
CHECK RT202
NO
IC204-14 CHROMA
260m Vp-p
IC204-26 CHROMA
220m Vp-p
CHECK IC204
NO
CHECK CP204
NO
IC204-12 PB5V
0V
CHECK IC203
5V
CHECK PB5V LINE

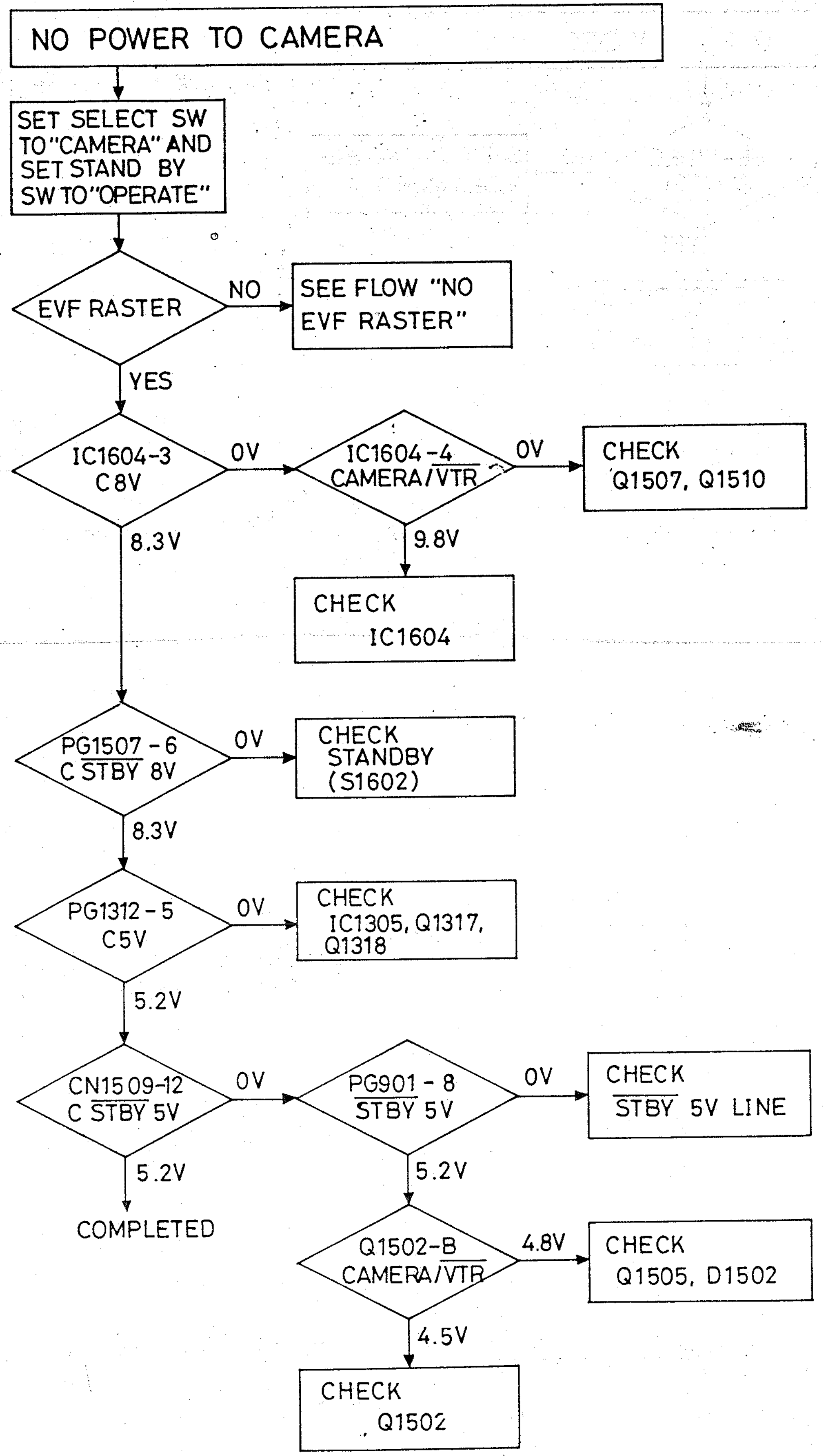
4. No play video


NO PLAY VIDEO
EE-VIDEO MONITOR
NO
SEE FLOW"NO EE-VIDEO MONITOR"
YES
SET SELECT SW TO "VTR" AND SET PLAY MODE
IC202-22 FM SIGNAL
NO
IC202-18 PB9V
9V
IC202-16 FM SIGNAL
20m Vp-p
CHECK IC202
0V
CHECK PB9V LINE
NO
IC202-25 FM SIGNAL
110m Vp-p
CHECK CP201
NO
IC202-1 SW12.5Hz
YES
IC202-7 SW25Hz
YES
CHECK IC202, IC201, VIDEO HEADS
NO
CHECK IC610
NO
CHECK IC601
640mVp-p
IC203-9 LUMA
1Vp-p
IC203-12 MONITOR CUT / LOAD
5V
CHECK MONITOR CUT / LOAD LINE
0V
CHECK IC203
NO
IC203-16 PB5V
0V
CHECK PB5V LINE
5V
IC203-26 LUMA
340m Vp-p
CHECK C240, IC203
NO
IC203-27 LUMA
230m Vp-p
CHECK Q207, Q208, C235
NO
IC203-20 FM SIGNAL
320m Vp-p
CHECK IC203
NO
CHECK Q204

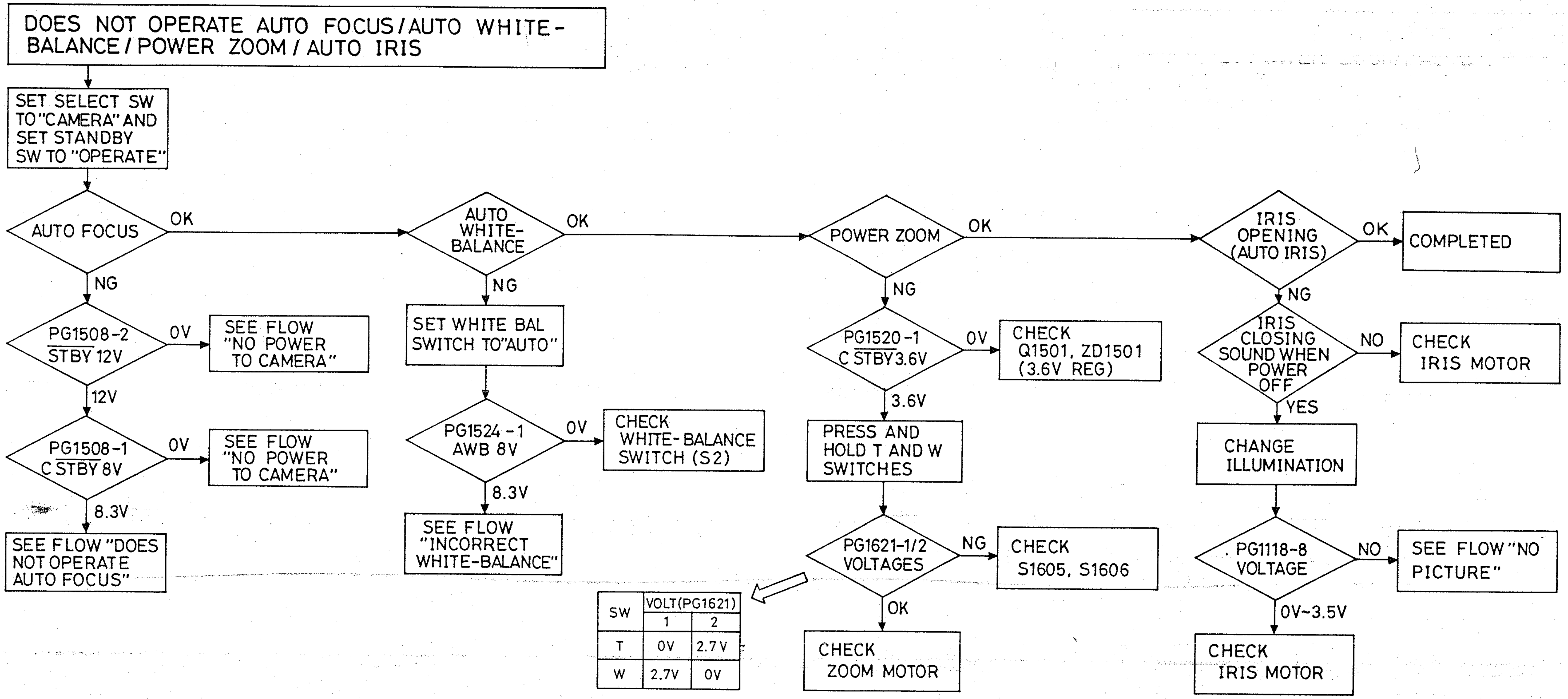
5. No play chroma


NO PLAY CHROMA
IC203-10 CHROMA
160m Vp-p
CHECK IC203
NO
IC204-14 CHROMA
300m Vp-p
IC204-23 CHROMA
1Vp-p
IC204-9 CHROMA
160m Vp-p
CHECK IC204
NO
CHECK DL202
NO
IC204-26 CHROMA
150m Vp-p
CHECK IC204
NO
CHECK CP204
NO
IC204-12 PB5V
5V
CHECK IC204
0V
CHECK PB5V LINE

6. No power to camera

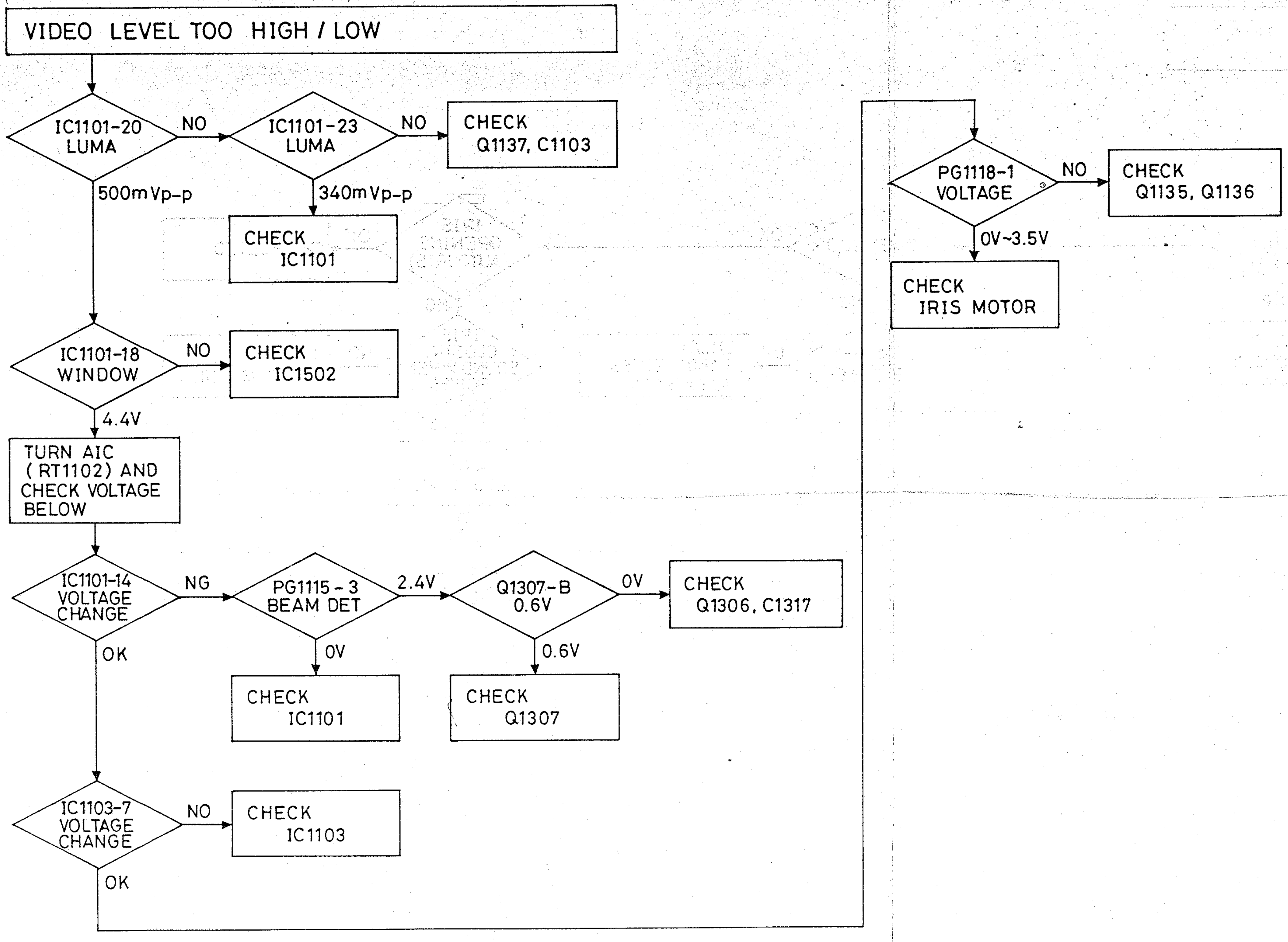

NO POWER TO CAMERA
SET SELECT SW TO "CAMERA" AND SET STAND BY SW TO "OPERATE"
EVF RASTER
NO
SEE FLOW "NO EVF RASTER"
YES
IC1604-3 C8V
0V
IC1604-4 CAMERA/VTR
0V
CHECK Q1507, Q1510
9.8V
CHECK IC1604
8.3V
PG1507-6 C STBY 8V
0V
CHECK STANDBY (S1602)
8.3V
PG1312-5 C5V
0V
CHECK IC1305, Q1317, Q1318
5.2V
CN1509-12 C STBY 5V
0V
PG901-8 STBY 5V
0V
CHECK STBY 5V LINE
5.2V
COMPLETED
5.2V
Q1502-B CAMERA/VTR
4.8V
CHECK Q1505, D1502
4.5V
CHECK Q1502

7. Does not operate auto focus/auto white-balance/power zoom/auto iris

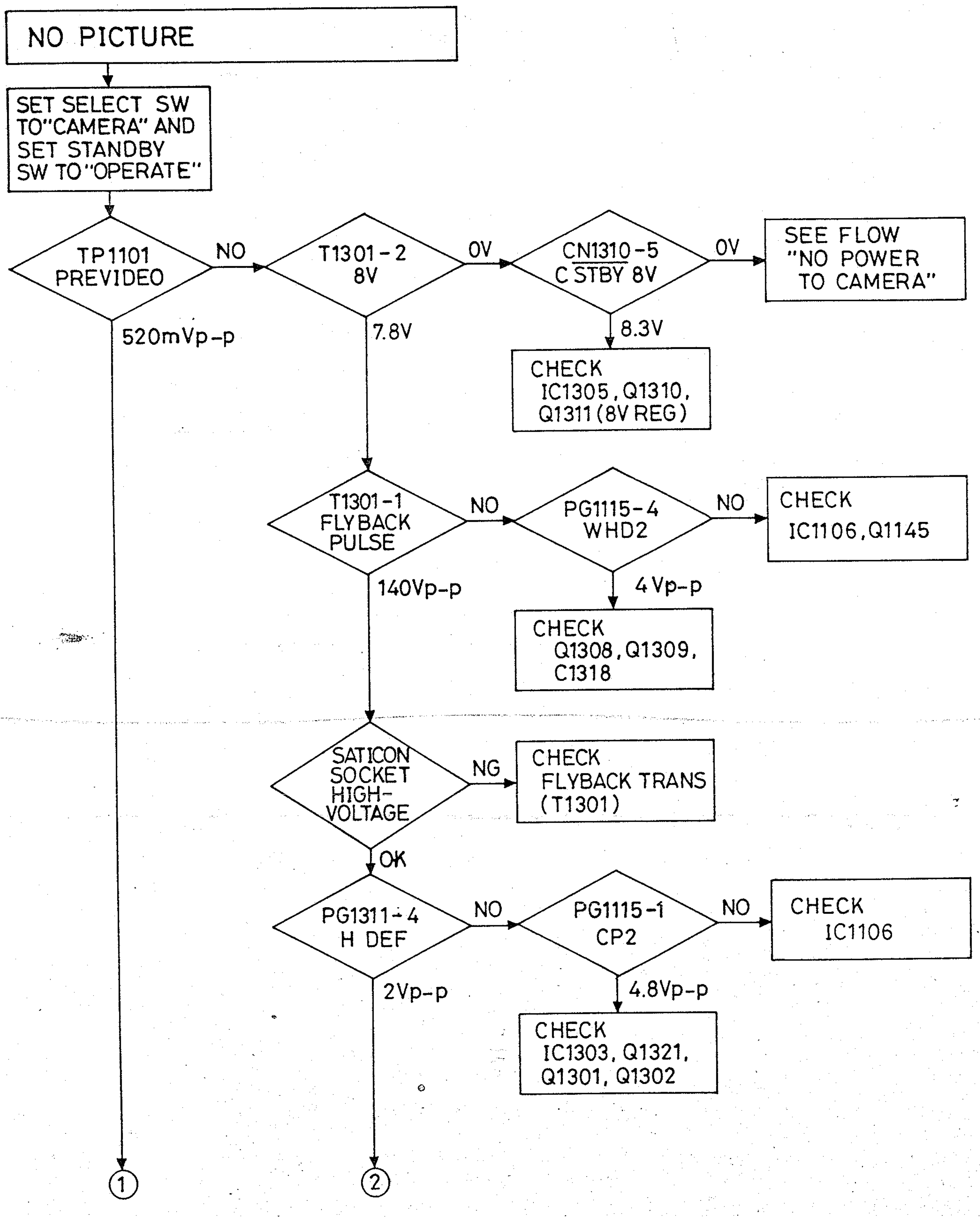

DOES NOT OPERATE AUTO FOCUS/AUTO WHITE-BALANCE/POWER ZOOM/AUTO IRIS
SET SELECT SW TO "CAMERA" AND SET STANDBY SW TO "OPERATE"
AUTO FOCUS
OK
NG
PG1508-2 STBY 12V
0V
SEE FLOW "NO POWER TO CAMERA"
12V
PG1508-1 C STBY 8V
0V
SEE FLOW "NO POWER TO CAMERA"
8.3V
SEE FLOW "DOES NOT OPERATE AUTO FOCUS"
AUTO WHITE-BALANCE
OK
NG
SET WHITE BAL SWITCH TO "AUTO"
PG1524-1 AWB 8V
0V
CHECK WHITE-BALANCE SWITCH (S2)
8.3V
SEE FLOW "INCORRECT WHITE-BALANCE"
POWER ZOOM
OK
NG
PG1520-1 C STBY 3.6V
0V
CHECK Q1501, ZD1501 (3.6V REG)
3.6V
PRESS AND HOLD T AND W SWITCHES
PG1621-1/2 VOLTAGES
NG
CHECK S1605, S1606
OK
CHECK ZOOM MOTOR
IRIS OPENING (AUTO IRIS)
OK
COMPLETED
NG
IRIS CLOSING SOUND WHEN POWER OFF
NO
CHECK IRIS MOTOR
YES
CHANGE ILLUMINATION
PG1118-8 VOLTAGE
NO
SEE FLOW "NO PICTURE"
0V~3.5V
CHECK IRIS MOTOR

SW	VOLT(PG1621) 1	VOLT(PG1621) 2
T	0V	2.7V
W	2.7V	0V

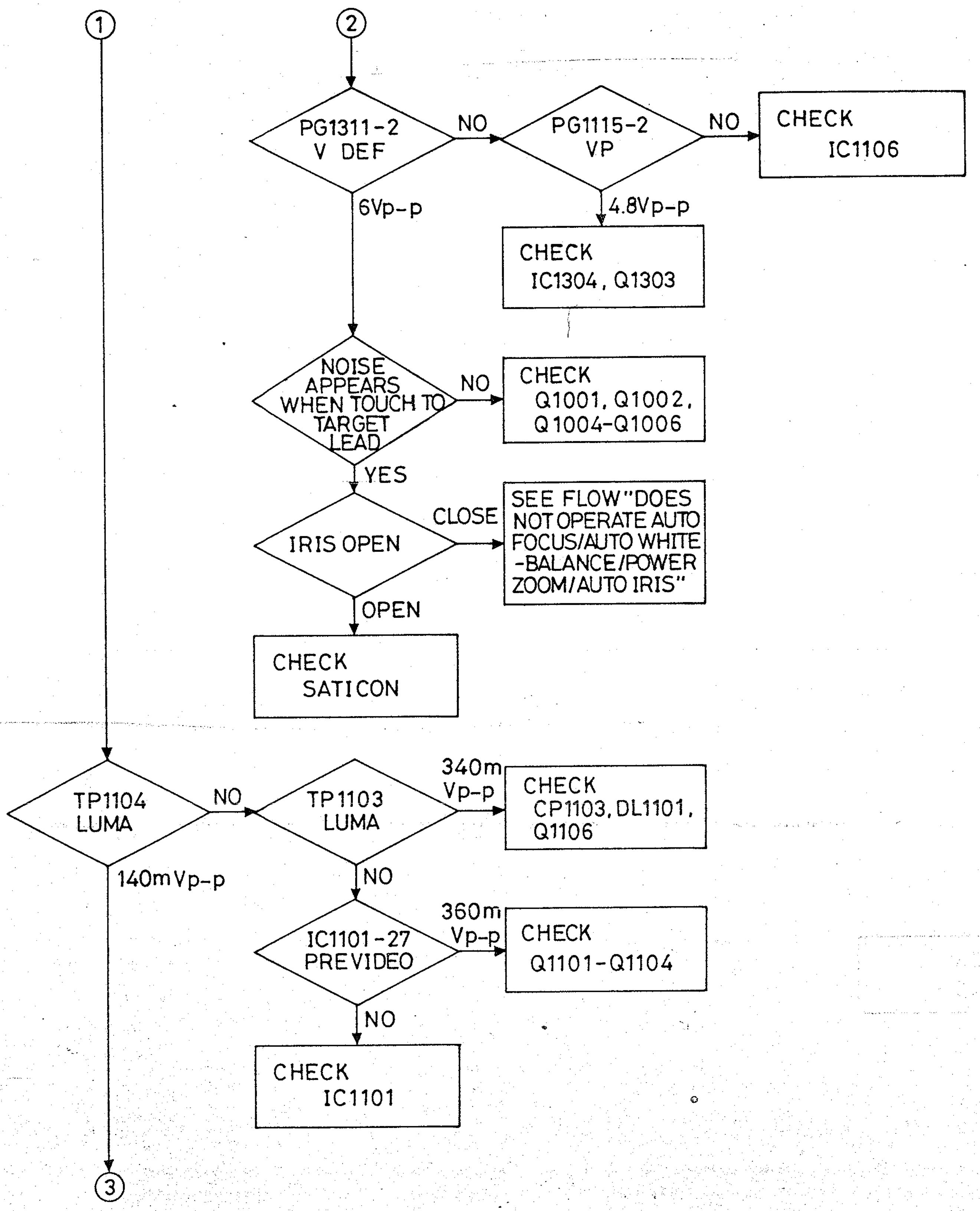
8. Video level too high/low


VIDEO LEVEL TOO HIGH / LOW
IC1101-20 LUMA
NO
IC1101-23 LUMA
NO
CHECK Q1137, C1103
500mVp-p
340mVp-p
CHECK IC1101
IC1101-18 WINDOW
NO
CHECK IC1502
4.4V
TURN AIC (RT1102) AND CHECK VOLTAGE BELOW
IC1101-14 VOLTAGE CHANGE
NG
PG1115-3 BEAM DET
2.4V
Q1307-B 0.6V
0V
CHECK Q1306, C1317
OK
0V
CHECK IC1101
0.6V
CHECK Q1307
IC1103-7 VOLTAGE CHANGE
NO
CHECK IC1103
OK
PG1118-1 VOLTAGE
NO
CHECK Q1135, Q1136
0V~3.5V
CHECK IRIS MOTOR

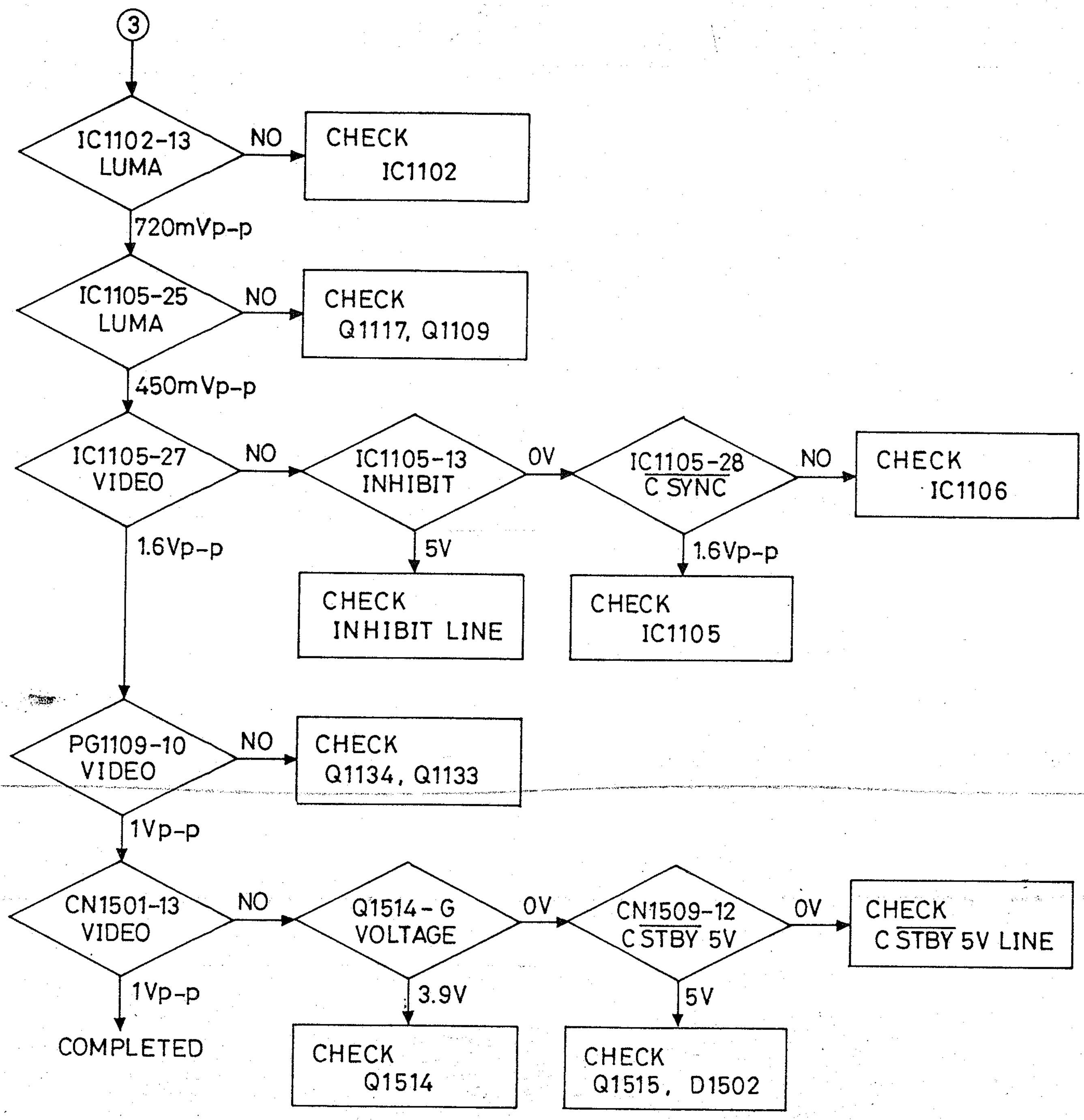
9. No picture



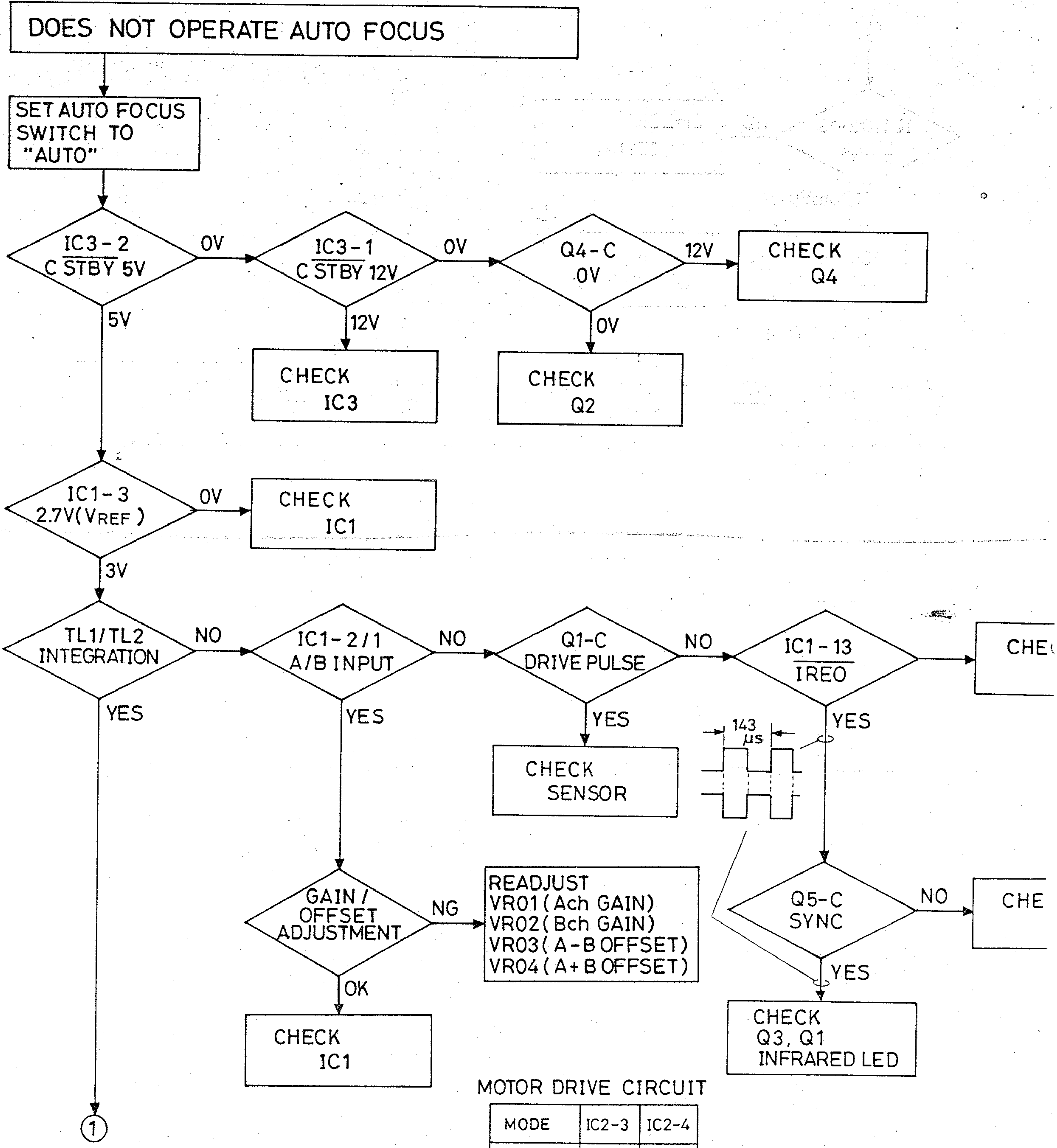
NO PICTURE
SET SELECT SW TO"CAMERA" AND SET STANDBY SW TO"OPERATE"
TP1101 PREVIDEO
NO
520mVp-p
T1301-2 8V
0V
7.8V
CN1310-5 C STBY 8V
0V
8.3V
SEE FLOW "NO POWER TO CAMERA"
CHECK IC1305, Q1310, Q1311 (8V REG)
T1301-1 FLYBACK PULSE
NO
140Vp-p
PG1115-4 WHD2
NO
4 Vp-p
CHECK IC1106, Q1145
CHECK Q1308, Q1309, C1318
SATICON SOCKET HIGH-VOLTAGE
NG
OK
CHECK FLYBACK TRANS (T1301)
PG1311-4 H DEF
NO
2Vp-p
PG1115-1 CP2
NO
4.8Vp-p
CHECK IC1106
CHECK IC1303, Q1321, Q1301, Q1302
①
②



①
②
PG1311-2 V DEF
NO
6Vp-p
PG1115-2 VP
NO
4.8Vp-p
CHECK IC1106
CHECK IC1304, Q1303
NOISE APPEARS WHEN TOUCH TO TARGET LEAD
NO
YES
CHECK Q1001, Q1002, Q1004-Q1006
IRIS OPEN
CLOSE
OPEN
SEE FLOW"DOES NOT OPERATE AUTO FOCUS/AUTO WHITE-BALANCE/POWER ZOOM/AUTO IRIS"
CHECK SATICON
TP1104 LUMA
NO
140mVp-p
TP1103 LUMA
340m Vp-p
NO
CHECK CP1103, DL1101, Q1106
IC1101-27 PREVIDEO
360m Vp-p
NO
CHECK Q1101-Q1104
CHECK IC1101
③


3
IC1102-13 LUMA
NO
CHECK IC1102
720mVp-p
IC1105-25 LUMA
NO
CHECK Q1117, Q1109
450mVp-p
IC1105-27 VIDEO
NO
IC1105-13 INHIBIT
0V
IC1105-28 C SYNC
NO
CHECK IC1106
1.6Vp-p
5V
CHECK INHIBIT LINE
1.6Vp-p
CHECK IC1105
PG1109-10 VIDEO
NO
CHECK Q1134, Q1133
1Vp-p
CN1501-13 VIDEO
NO
Q1514-G VOLTAGE
0V
CN1509-12 C STBY 5V
0V
CHECK C STBY 5V LINE
1Vp-p
COMPLETED
3.9V
CHECK Q1514
5V
CHECK Q1515, D1502

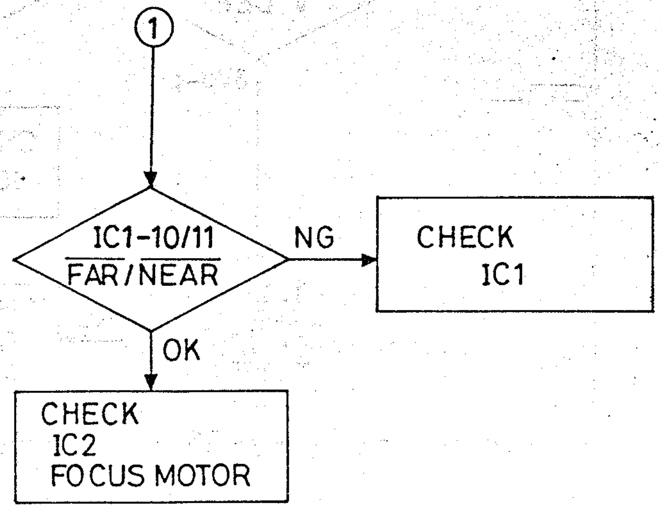
10. Does not operate auto focus

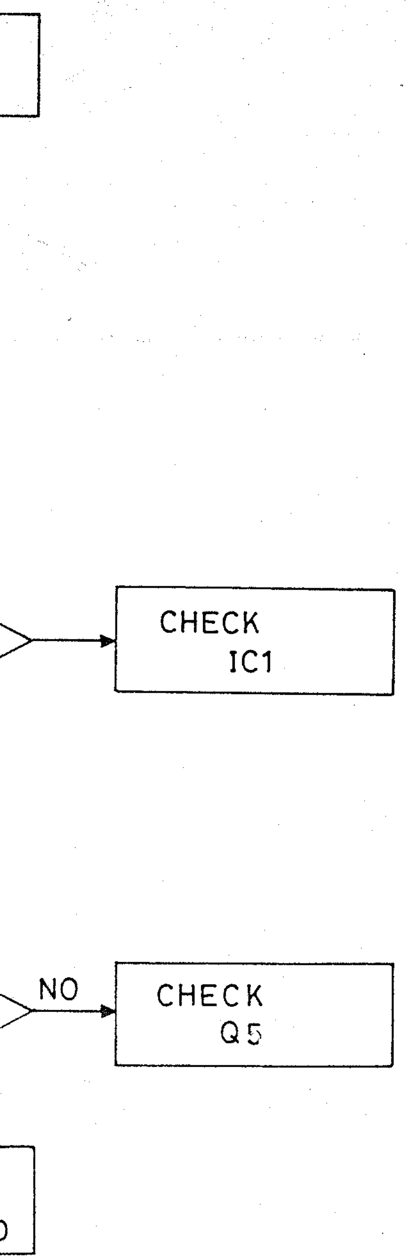

DOES NOT OPERATE AUTO FOCUS
SET AUTO FOCUS SWITCH TO "AUTO"
IC3-2 C STBY 5V
0V
5V
IC3-1 C STBY 12V
0V
12V
Q4-C 0V
12V
0V
CHECK Q4
CHECK IC3
CHECK Q2
IC1-3 2.7V(VREF)
0V
3V
CHECK IC1
TL1/TL2 INTEGRATION
NO
YES
IC1-2/1 A/B INPUT
NO
YES
Q1-C DRIVE PULSE
NO
YES
IC1-13 IREO
YES
CHE
CHECK SENSOR
143 µs
GAIN / OFFSET ADJUSTMENT
NG
OK
READJUST
VR01 (Ach GAIN)
VR02 (Bch GAIN)
VR03 (A-B OFFSET)
VR04 (A+B OFFSET)
CHECK IC1
Q5-C SYNC
NO
YES
CHE
CHECK Q3, Q1 INFRARED LED
①

MOTOR DRIVE CIRCUIT

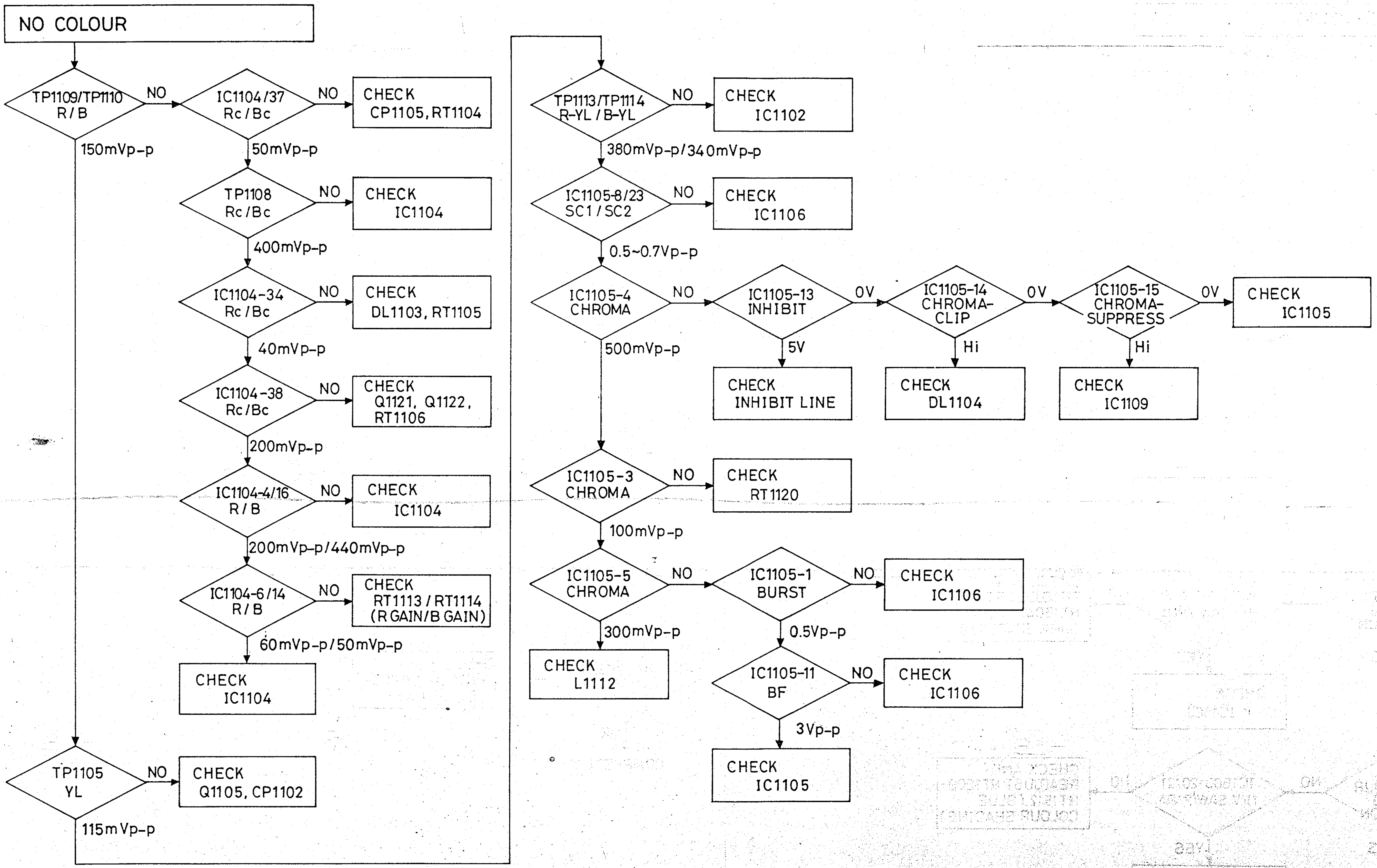
MODE	IC2-3	IC2-4
FAR	0	1
NEAR	1	0

1 : 5V, 0 : 0V

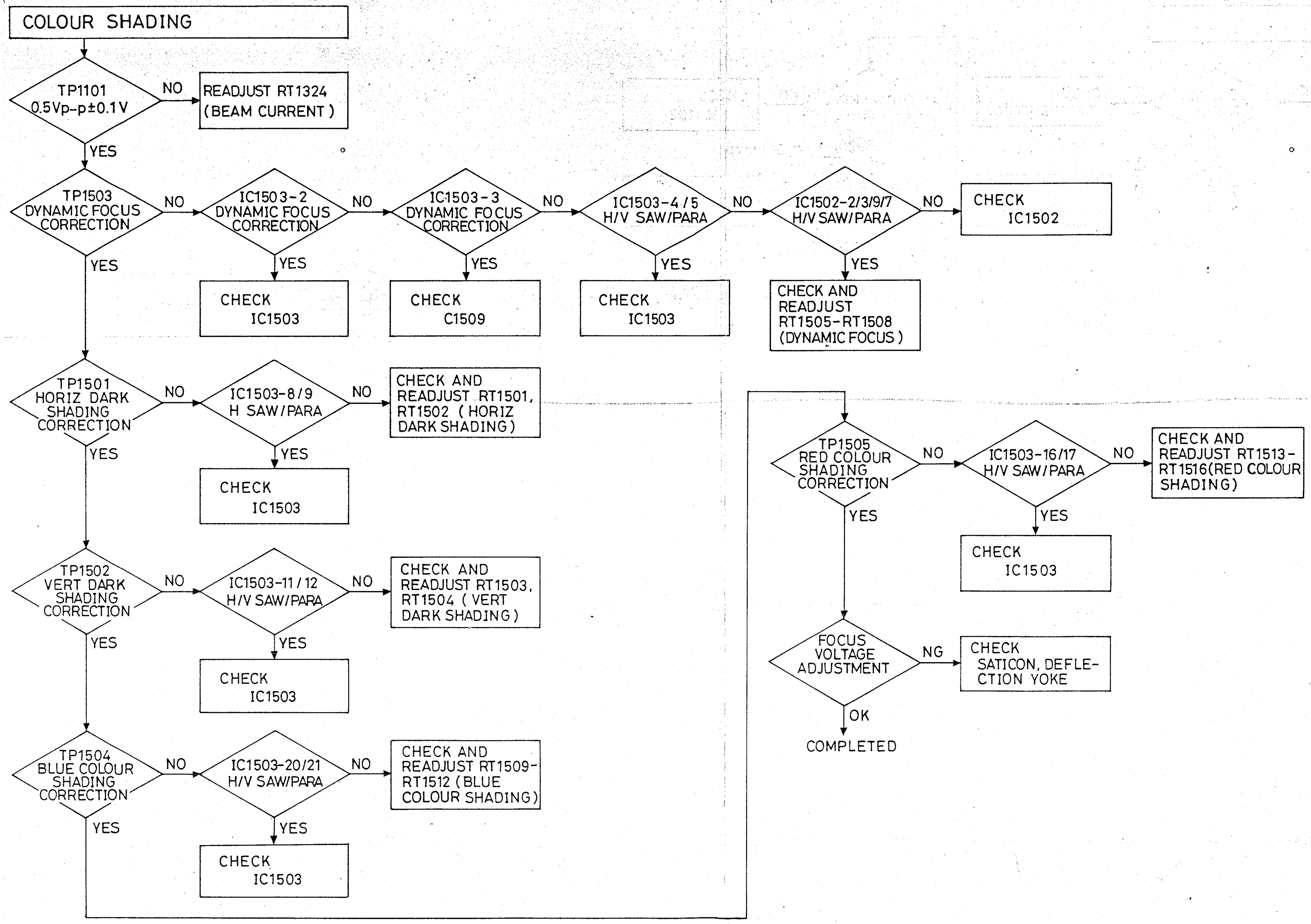

①
IC1-10/11
FAR/NEAR
NG
CHECK
IC1
OK
CHECK
IC2
FOCUS MOTOR


CHECK
IC1
NO
CHECK
Q5

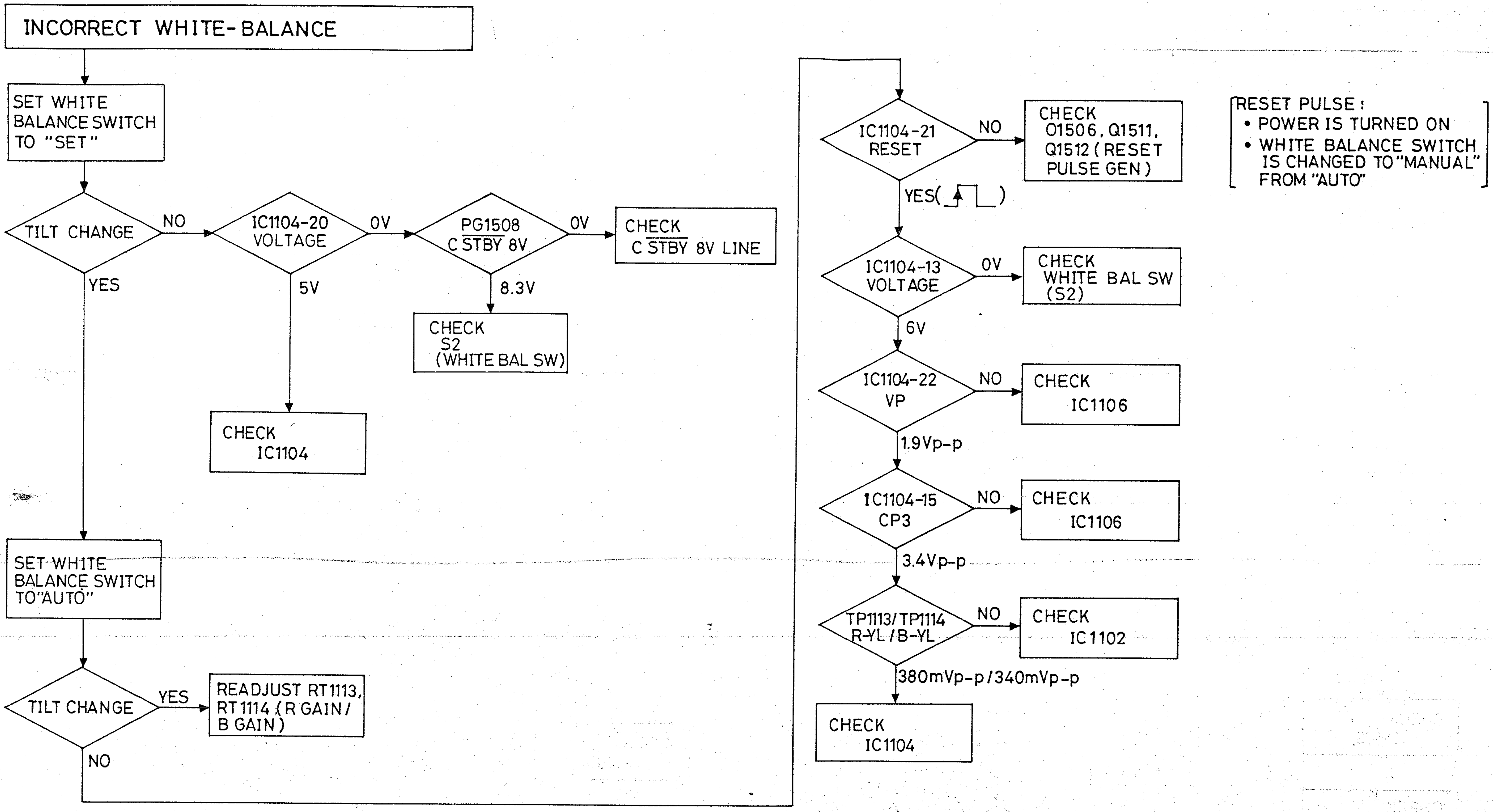
11. No Colour


NO COLOUR
TP1109/TP1110 R/B
NO
IC1104/37 Rc/Bc
NO
CHECK CP1105, RT1104
150mVp-p
50mVp-p
TP1108 Rc/Bc
NO
CHECK IC1104
400mVp-p
IC1104-34 Rc/Bc
NO
CHECK DL1103, RT1105
40mVp-p
IC1104-38 Rc/Bc
NO
CHECK Q1121, Q1122, RT1106
200mVp-p
IC1104-4/16 R/B
NO
CHECK IC1104
200mVp-p/440mVp-p
IC1104-6/14 R/B
NO
CHECK RT1113 / RT1114 (R GAIN/B GAIN)
60mVp-p/50mVp-p
CHECK IC1104
TP1105 YL
NO
CHECK Q1105, CP1102
115mVp-p
TP1113/TP1114 R-YL / B-YL
NO
CHECK IC1102
380mVp-p/340mVp-p
IC1105-8/23 SC1 / SC2
NO
CHECK IC1106
0.5~0.7Vp-p
IC1105-4 CHROMA
NO
IC1105-13 INHIBIT
0V
IC1105-14 CHROMA-CLIP
0V
IC1105-15 CHROMA-SUPPRESS
0V
CHECK IC1105
500mVp-p
5V
CHECK INHIBIT LINE
Hi
CHECK DL1104
Hi
CHECK IC1109
IC1105-3 CHROMA
NO
CHECK RT1120
100mVp-p
IC1105-5 CHROMA
NO
IC1105-1 BURST
NO
CHECK IC1106
300mVp-p
CHECK L1112
0.5Vp-p
IC1105-11 BF
NO
CHECK IC1106
3Vp-p
CHECK IC1105

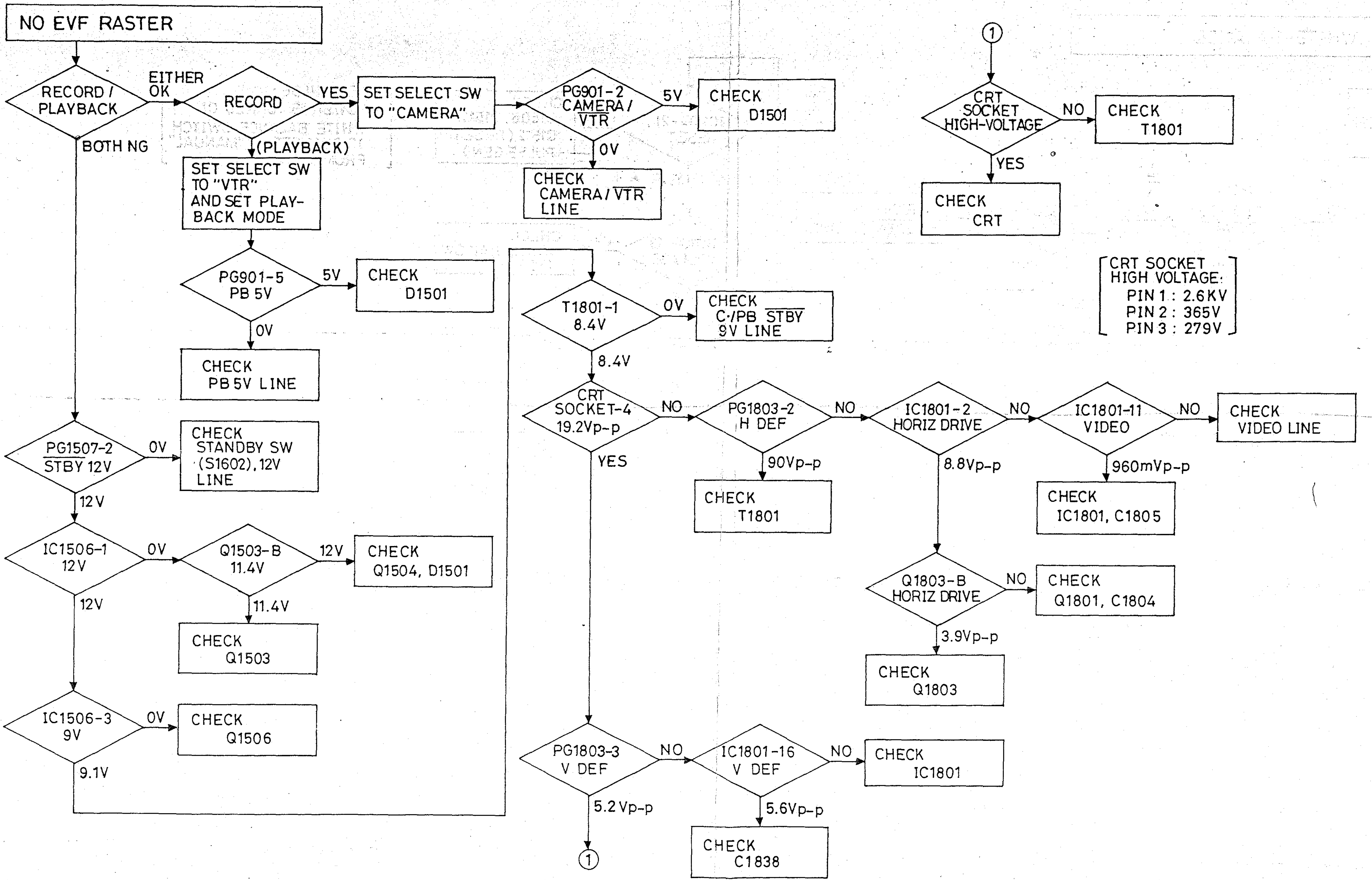
12. Colour shading


COLOUR SHADING
TP1101 0.5Vp-p±0.1V
NO
READJUST RT1324 (BEAM CURRENT)
YES
TP1503 DYNAMIC FOCUS CORRECTION
NO
IC1503-2 DYNAMIC FOCUS CORRECTION
NO
IC1503-3 DYNAMIC FOCUS CORRECTION
NO
IC1503-4/5 H/V SAW/PARA
NO
IC1502-2/3/9/7 H/V SAW/PARA
NO
CHECK IC1502
YES
CHECK IC1503
YES
CHECK C1509
YES
CHECK IC1503
YES
CHECK AND READJUST RT1505-RT1508 (DYNAMIC FOCUS)
YES
TP1501 HORIZ DARK SHADING CORRECTION
NO
IC1503-8/9 H SAW/PARA
NO
CHECK AND READJUST RT1501, RT1502 (HORIZ DARK SHADING)
YES
CHECK IC1503
YES
TP1502 VERT DARK SHADING CORRECTION
NO
IC1503-11/12 H/V SAW/PARA
NO
CHECK AND READJUST RT1503, RT1504 (VERT DARK SHADING)
YES
CHECK IC1503
YES
TP1504 BLUE COLOUR SHADING CORRECTION
NO
IC1503-20/21 H/V SAW/PARA
NO
CHECK AND READJUST RT1509-RT1512 (BLUE COLOUR SHADING)
YES
CHECK IC1503
YES
TP1505 RED COLOUR SHADING CORRECTION
NO
IC1503-16/17 H/V SAW/PARA
NO
CHECK AND READJUST RT1513-RT1516(RED COLOUR SHADING)
YES
CHECK IC1503
YES
FOCUS VOLTAGE ADJUSTMENT
NG
CHECK SATICON, DEFLECTION YOKE
OK
COMPLETED

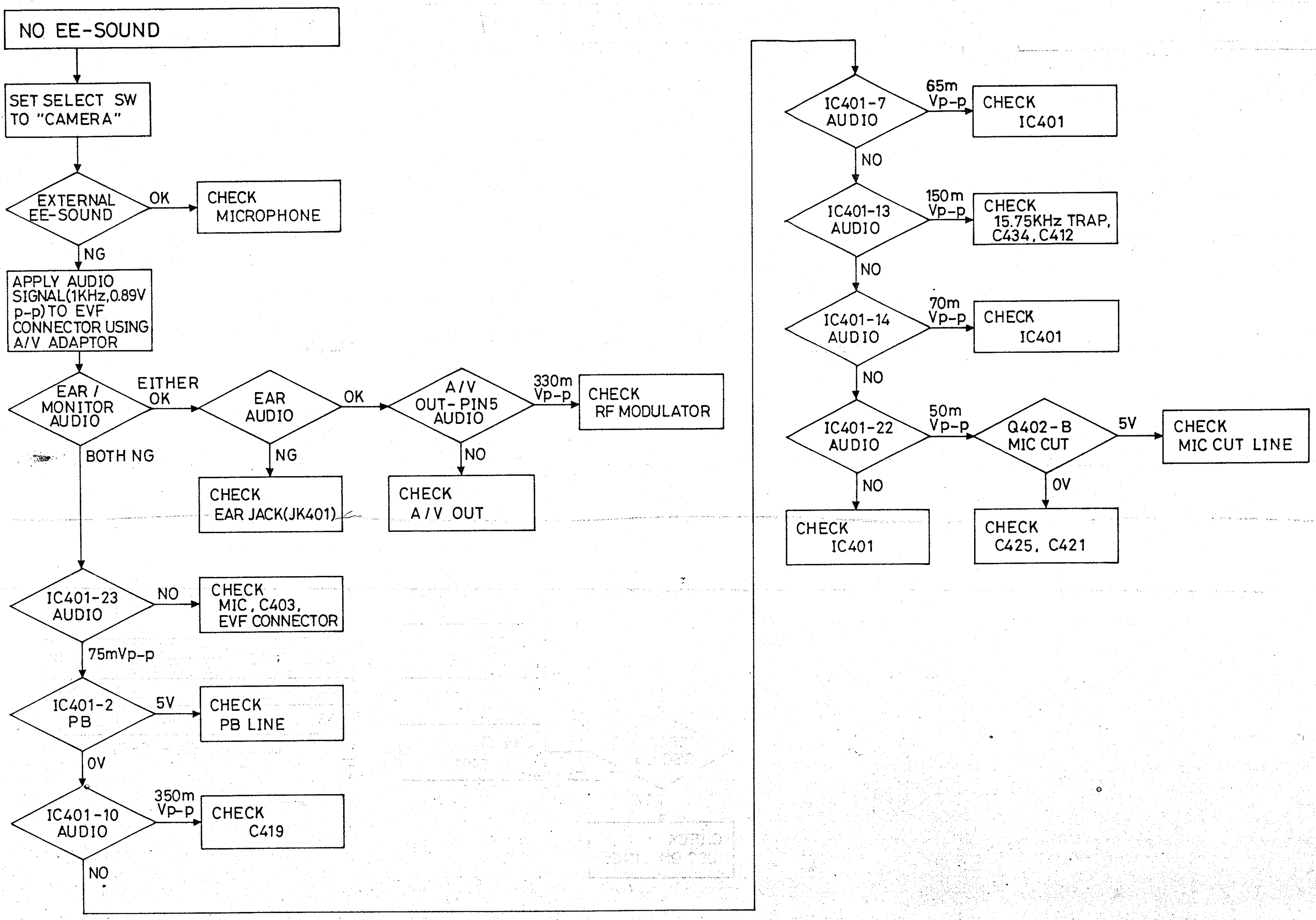
13. Incorrect white-balance


INCORRECT WHITE-BALANCE
SET WHITE BALANCE SWITCH TO "SET"
TILT CHANGE
NO
YES
IC1104-20 VOLTAGE
0V
5V
PG1508 C STBY 8V
0V
8.3V
CHECK C STBY 8V LINE
CHECK S2 (WHITE BAL SW)
CHECK IC1104
SET WHITE BALANCE SWITCH TO "AUTO"
TILT CHANGE
YES
NO
READJUST RT1113, RT1114 (R GAIN / B GAIN)
IC1104-21 RESET
NO
CHECK Q1506, Q1511, Q1512 (RESET PULSE GEN)
YES( )
IC1104-13 VOLTAGE
0V
CHECK WHITE BAL SW (S2)
6V
IC1104-22 VP
NO
CHECK IC1106
1.9Vp-p
IC1104-15 CP3
NO
CHECK IC1106
3.4Vp-p
TP1113/TP1114 R-YL / B-YL
NO
CHECK IC1102
380mVp-p / 340mVp-p
CHECK IC1104
RESET PULSE:
• POWER IS TURNED ON
• WHITE BALANCE SWITCH IS CHANGED TO "MANUAL" FROM "AUTO"

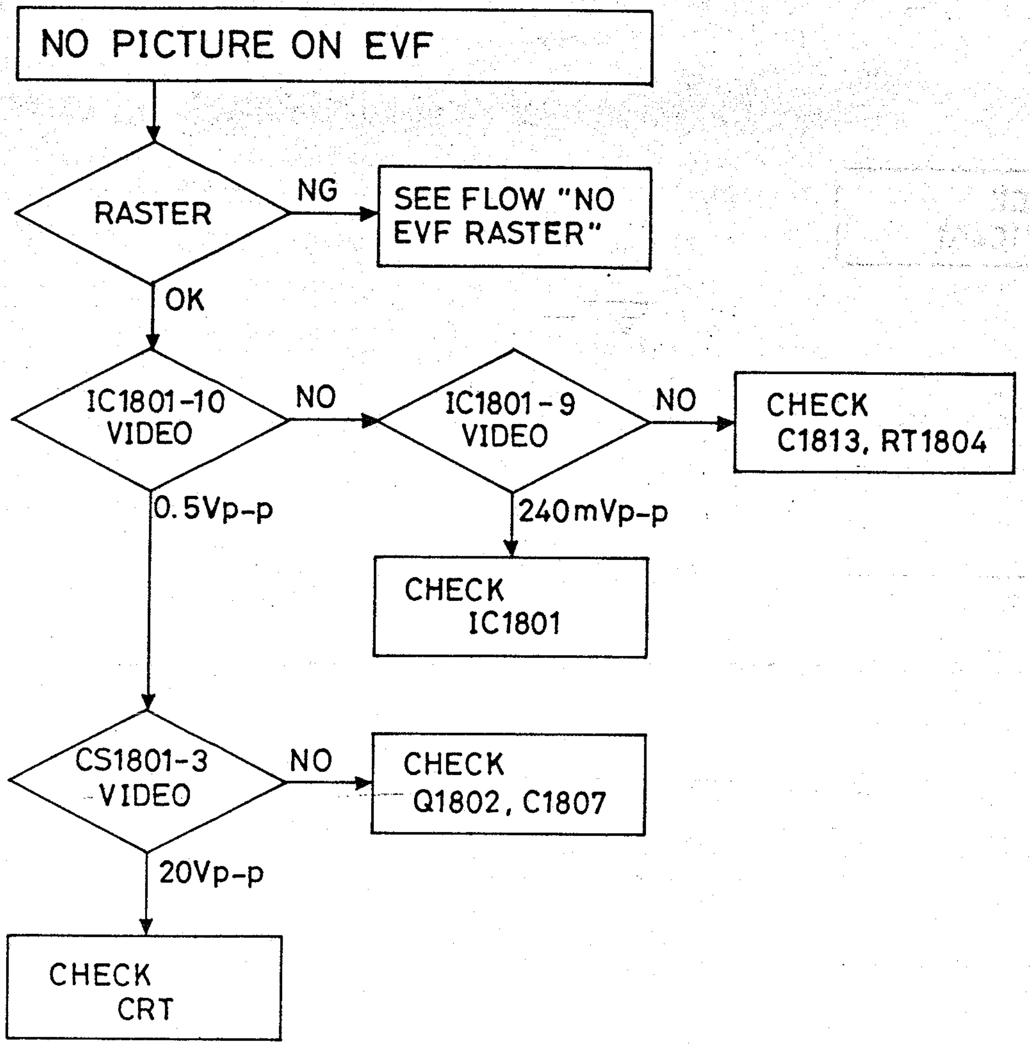
14. No EVF raster


NO EVF RASTER
RECORD / PLAYBACK
EITHER OK
BOTH NG
RECORD
YES
(PLAYBACK)
SET SELECT SW TO "CAMERA"
SET SELECT SW TO "VTR" AND SET PLAY-BACK MODE
PG901-2 CAMERA / $\overline{\text{VTR}}$
5V
CHECK D1501
0V
CHECK CAMERA / $\overline{\text{VTR}}$ LINE
PG901-5 PB 5V
5V
CHECK D1501
0V
CHECK PB 5V LINE
PG1507-2 $\overline{\text{STBY}}$ 12V
0V
CHECK STANDBY SW (S1602), 12V LINE
12V
IC1506-1 12V
0V
Q1503-B 11.4V
12V
CHECK Q1504, D1501
11.4V
CHECK Q1503
12V
IC1506-3 9V
0V
CHECK Q1506
9.1V
T1801-1 8.4V
0V
CHECK C·/PB $\overline{\text{STBY}}$ 9V LINE
8.4V
CRT SOCKET-4 19.2Vp-p
NO
PG1803-2 H DEF
NO
IC1801-2 HORIZ DRIVE
NO
IC1801-11 VIDEO
NO
CHECK VIDEO LINE
90Vp-p
CHECK T1801
8.8Vp-p
960mVp-p
CHECK IC1801, C1805
Q1803-B HORIZ DRIVE
NO
CHECK Q1801, C1804
3.9Vp-p
CHECK Q1803
YES
PG1803-3 V DEF
NO
IC1801-16 V DEF
NO
CHECK IC1801
5.6Vp-p
CHECK C1838
5.2Vp-p
①
①
CRT SOCKET HIGH-VOLTAGE
NO
CHECK T1801
YES
CHECK CRT
CRT SOCKET HIGH VOLTAGE:
PIN 1 : 2.6KV
PIN 2 : 365V
PIN 3 : 279V

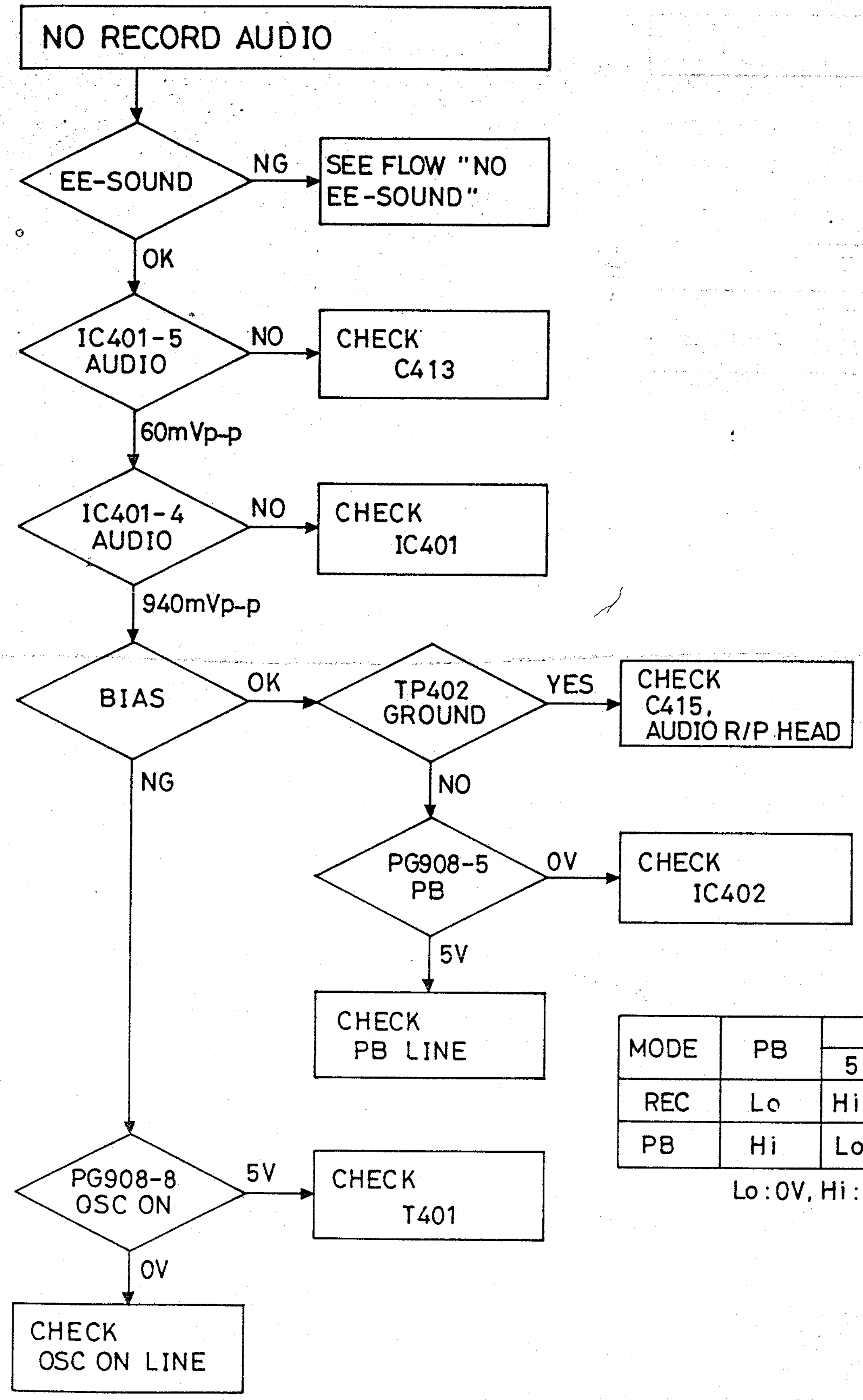
15. No EE-sound


NO EE-SOUND
SET SELECT SW TO "CAMERA"
EXTERNAL EE-SOUND
OK
CHECK MICROPHONE
NG
APPLY AUDIO SIGNAL(1KHz,0.89V p-p) TO EVF CONNECTOR USING A/V ADAPTOR
EAR / MONITOR AUDIO
EITHER OK
EAR AUDIO
OK
A/V OUT-PIN5 AUDIO
330m Vp-p
CHECK RF MODULATOR
NG
CHECK EAR JACK(JK401)
NO
CHECK A/V OUT
BOTH NG
IC401-23 AUDIO
NO
CHECK MIC, C403, EVF CONNECTOR
75mVp-p
IC401-2 PB
5V
CHECK PB LINE
0V
IC401-10 AUDIO
350m Vp-p
CHECK C419
NO
IC401-7 AUDIO
65m Vp-p
CHECK IC401
NO
IC401-13 AUDIO
150m Vp-p
CHECK 15.75KHz TRAP, C434, C412
NO
IC401-14 AUDIO
70m Vp-p
CHECK IC401
NO
IC401-22 AUDIO
50m Vp-p
Q402-B MIC CUT
5V
CHECK MIC CUT LINE
0V
CHECK C425, C421
NO
CHECK IC401

16. No picture on EVF


NO PICTURE ON EVF
RASTER
NG
SEE FLOW "NO EVF RASTER"
OK
IC1801-10 VIDEO
NO
IC1801-9 VIDEO
NO
CHECK C1813, RT1804
240mVp-p
CHECK IC1801
0.5Vp-p
CS1801-3 VIDEO
NO
CHECK Q1802, C1807
20Vp-p
CHECK CRT

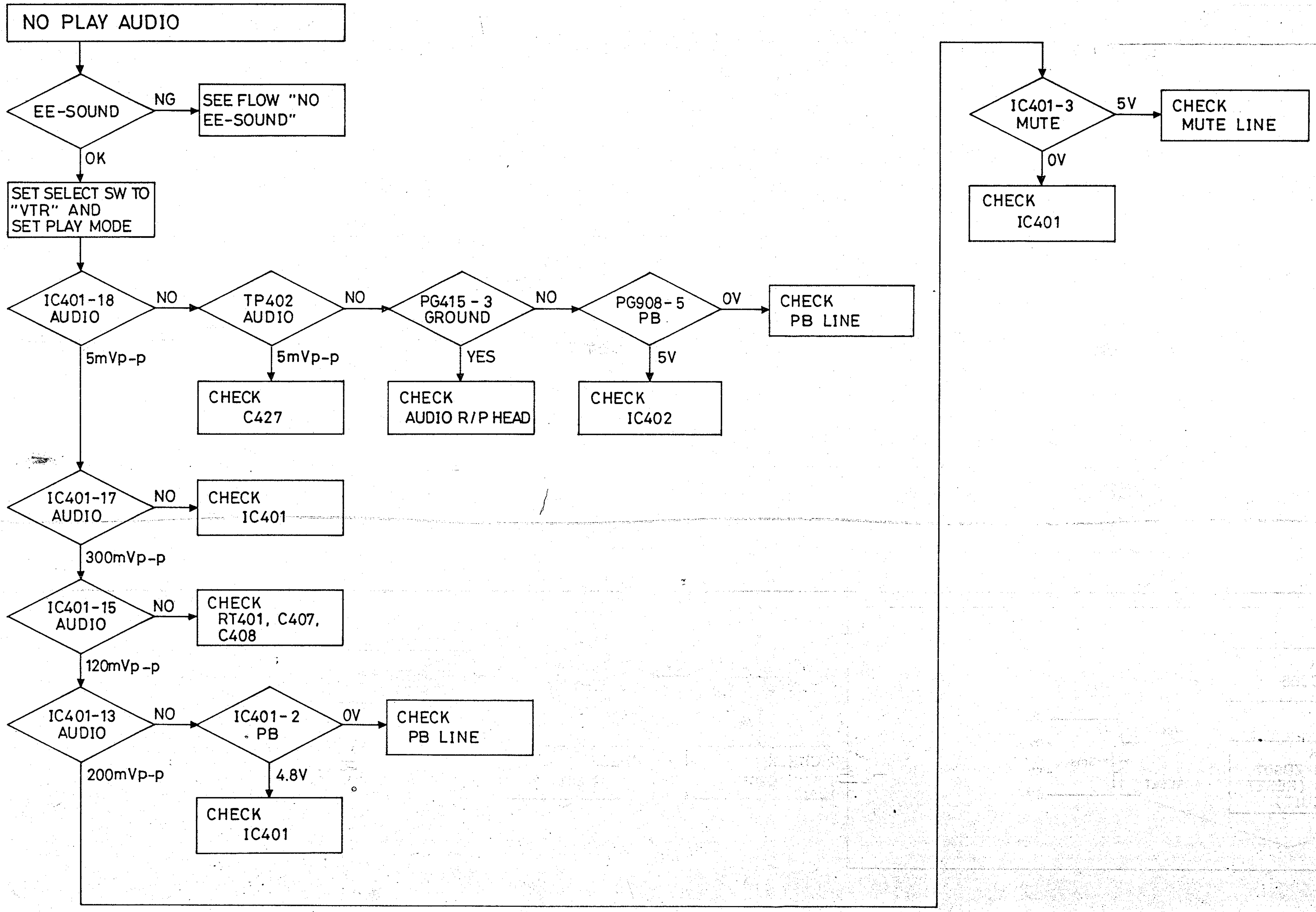
17. No record audio


NO RECORD AUDIO
EE-SOUND
NG
SEE FLOW "NO EE-SOUND"
OK
IC401-5 AUDIO
NO
CHECK C413
60mVp-p
IC401-4 AUDIO
NO
CHECK IC401
940mVp-p
BIAS
OK
TP402 GROUND
YES
CHECK C415, AUDIO R/P HEAD
NO
PG908-5 PB
0V
CHECK IC402
5V
CHECK PB LINE
NG
PG908-8 OSC ON
5V
CHECK T401
0V
CHECK OSC ON LINE

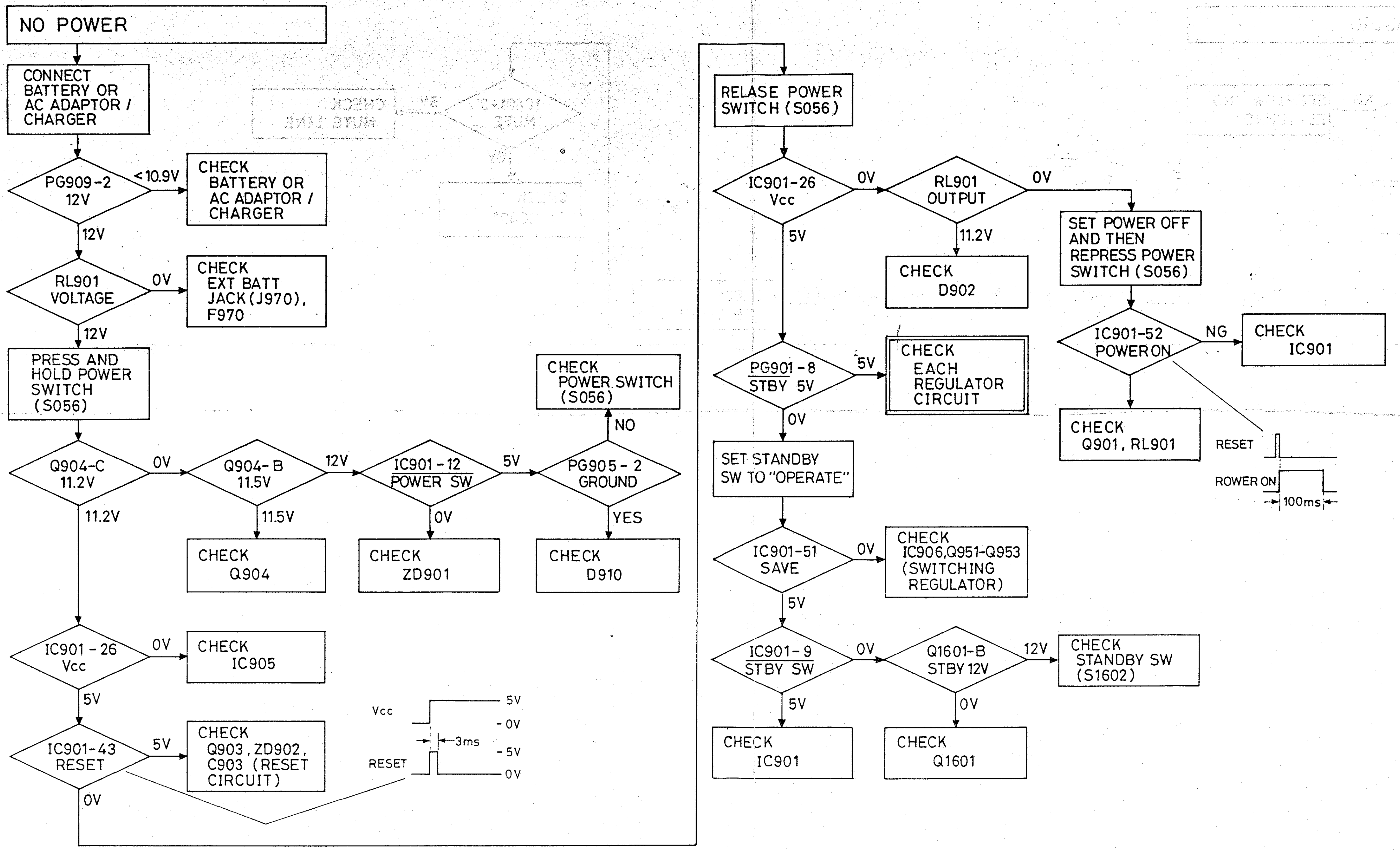
MODE	PB	IC402				Q401
		5	7	3	1	
REC	Lo	Hi	Lo	Lo	-	OFF
PB	Hi	Lo	Hi	-	Lo	ON

Lo : 0V, Hi : 5V, - : OPEN

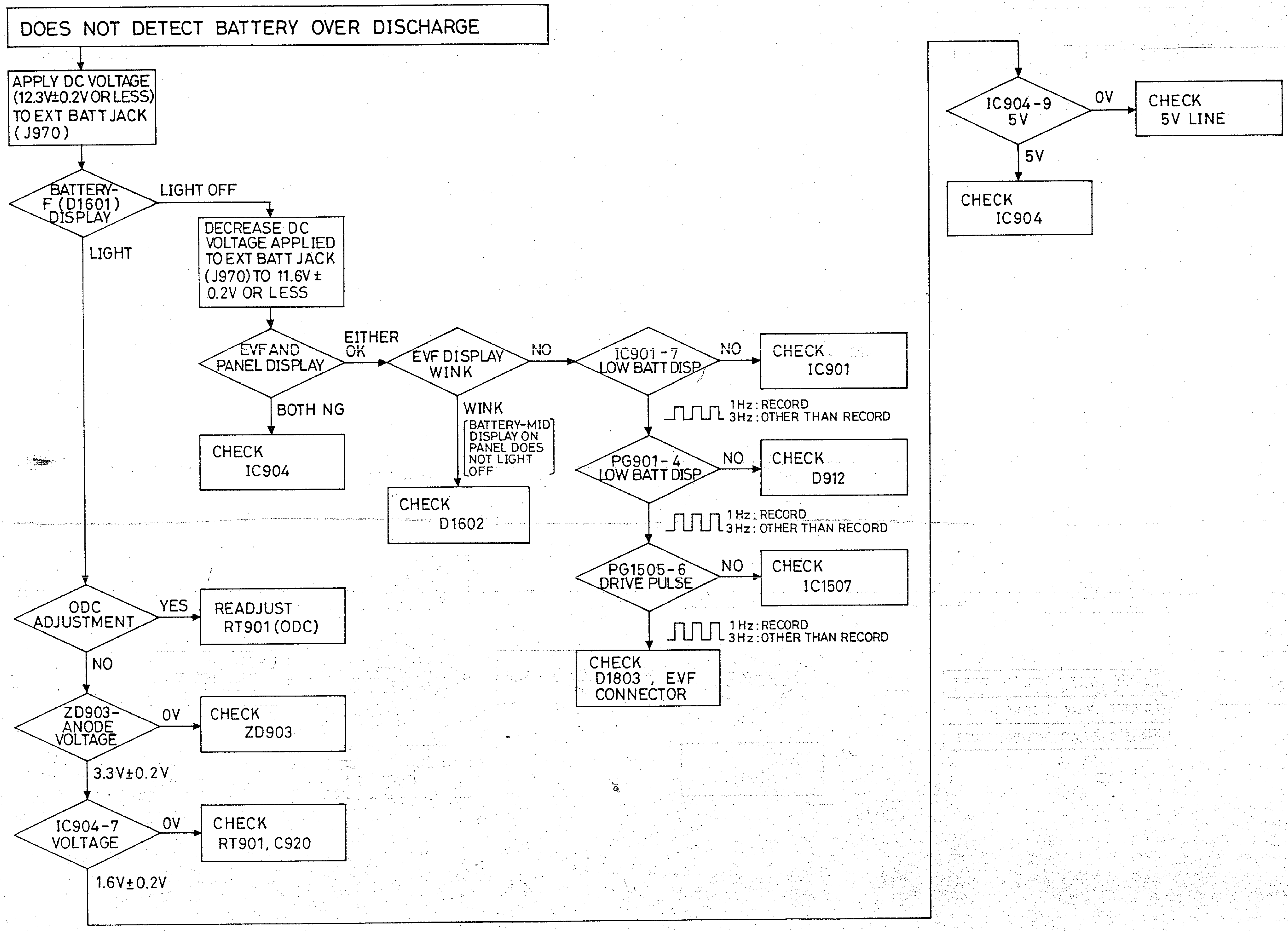
18. No play audio


NO PLAY AUDIO
EE-SOUND
NG
SEE FLOW "NO EE-SOUND"
OK
SET SELECT SW TO "VTR" AND SET PLAY MODE
IC401-18 AUDIO
NO
TP402 AUDIO
NO
PG415 - 3 GROUND
NO
PG908 - 5 PB
0V
CHECK PB LINE
5mVp-p
5mVp-p
CHECK C427
YES
CHECK AUDIO R/P HEAD
5V
CHECK IC402
IC401-17 AUDIO
NO
CHECK IC401
300mVp-p
IC401-15 AUDIO
NO
CHECK RT401, C407, C408
120mVp-p
IC401-13 AUDIO
NO
IC401-2 PB
0V
CHECK PB LINE
200mVp-p
4.8V
CHECK IC401
IC401-3 MUTE
5V
CHECK MUTE LINE
0V
CHECK IC401

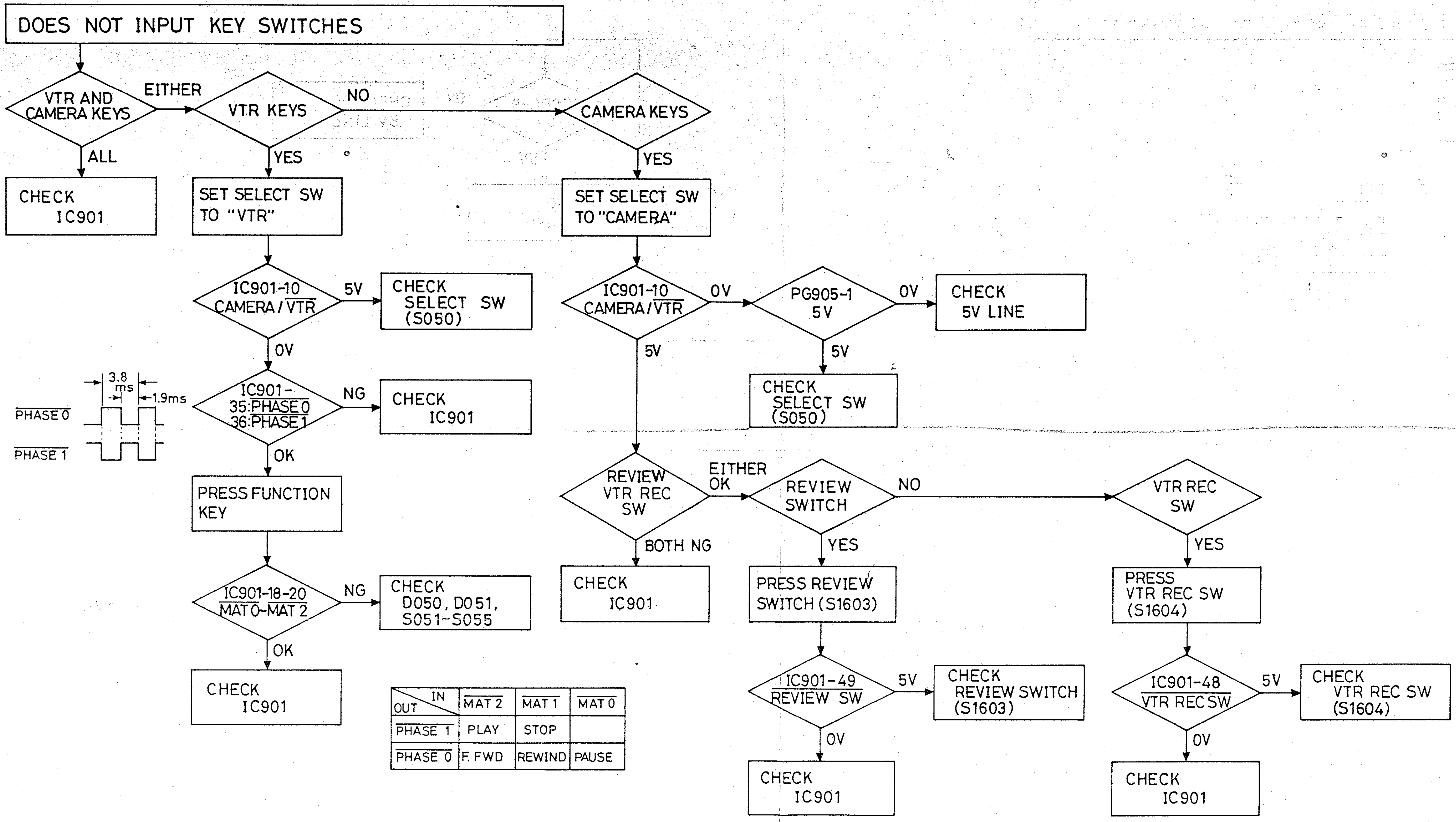
19. No power


NO POWER
CONNECT BATTERY OR AC ADAPTOR / CHARGER
PG909-2 12V
<10.9V
CHECK BATTERY OR AC ADAPTOR / CHARGER
12V
RL901 VOLTAGE
0V
CHECK EXT BATT JACK (J970), F970
12V
PRESS AND HOLD POWER SWITCH (S056)
Q904-C 11.2V
0V
Q904-B 11.5V
12V
IC901-12 POWER SW
5V
PG905-2 GROUND
NO
CHECK POWER SWITCH (S056)
YES
CHECK D910
0V
CHECK ZD901
11.5V
CHECK Q904
11.2V
IC901-26 Vcc
0V
CHECK IC905
5V
IC901-43 RESET
5V
CHECK Q903, ZD902, C903 (RESET CIRCUIT)
0V
Vcc
5V
0V
3ms
RESET
5V
0V
RELASE POWER SWITCH (S056)
IC901-26 Vcc
0V
RL901 OUTPUT
0V
SET POWER OFF AND THEN REPRESS POWER SWITCH (S056)
11.2V
CHECK D902
5V
PG901-8 STBY 5V
5V
CHECK EACH REGULATOR CIRCUIT
0V
SET STANDBY SW TO "OPERATE"
IC901-51 SAVE
0V
CHECK IC906, Q951-Q953 (SWITCHING REGULATOR)
5V
IC901-9 STBY SW
0V
Q1601-B STBY 12V
12V
CHECK STANDBY SW (S1602)
5V
CHECK IC901
0V
CHECK Q1601
IC901-52 POWER ON
NG
CHECK IC901
CHECK Q901, RL901
RESET
ROWER ON
100ms

20. Does not detect battery over discharge

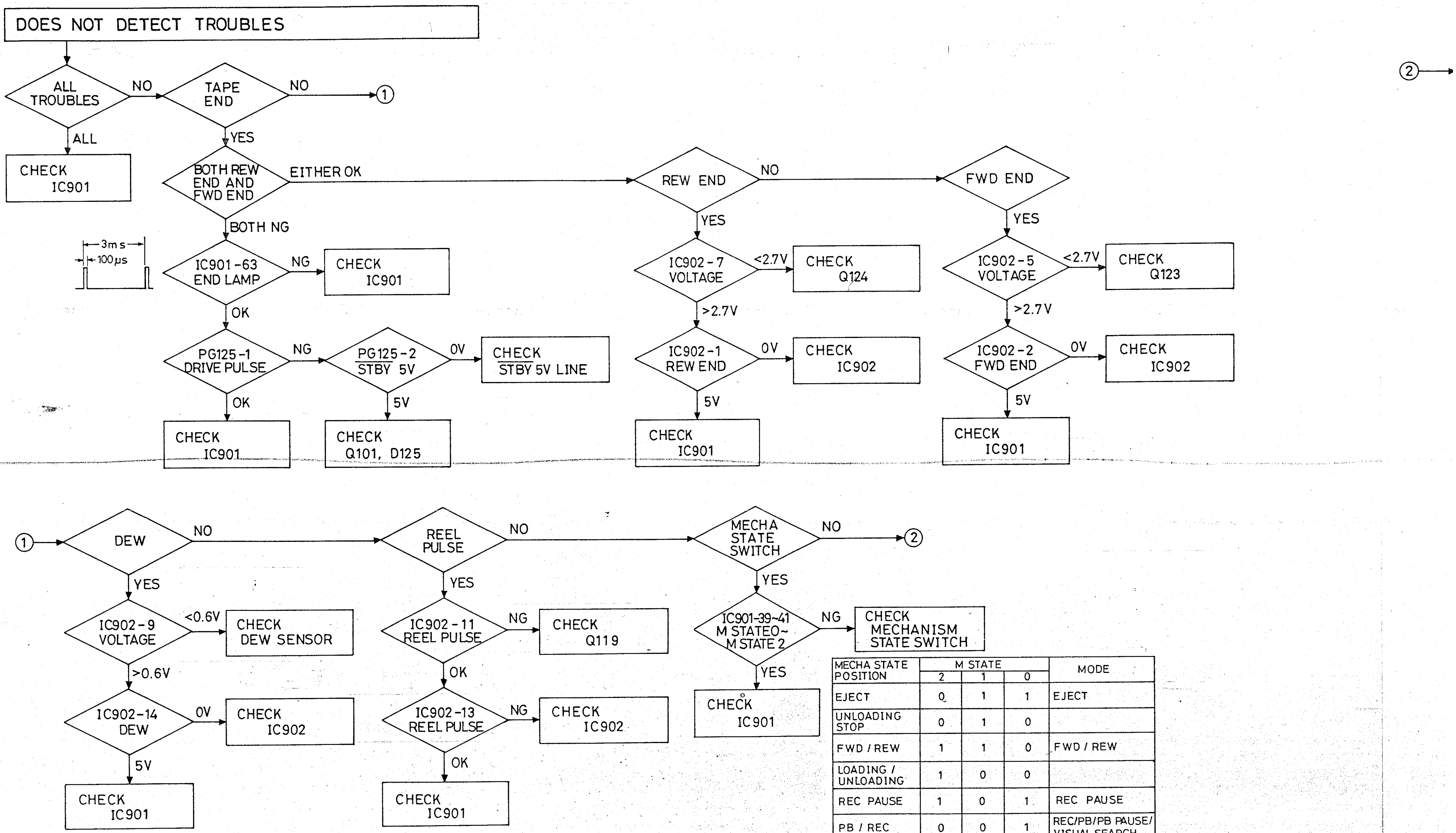

DOES NOT DETECT BATTERY OVER DISCHARGE
APPLY DC VOLTAGE (12.3V±0.2V OR LESS) TO EXT BATT JACK (J970)
BATTERY-F (D1601) DISPLAY
LIGHT OFF
LIGHT
DECREASE DC VOLTAGE APPLIED TO EXT BATT JACK (J970) TO 11.6V ± 0.2V OR LESS
EVF AND PANEL DISPLAY
EITHER OK
BOTH NG
CHECK IC904
EVF DISPLAY WINK
WINK
BATTERY-MID DISPLAY ON PANEL DOES NOT LIGHT OFF
CHECK D1602
NO
IC901-7 LOW BATT DISP
NO
CHECK IC901
1Hz: RECORD
3Hz: OTHER THAN RECORD
PG901-4 LOW BATT DISP
NO
CHECK D912
1Hz: RECORD
3Hz: OTHER THAN RECORD
PG1505-6 DRIVE PULSE
NO
CHECK IC1507
1Hz: RECORD
3Hz: OTHER THAN RECORD
CHECK D1803, EVF CONNECTOR
ODC ADJUSTMENT
YES
READJUST RT901 (ODC)
NO
ZD903-ANODE VOLTAGE
0V
CHECK ZD903
3.3V±0.2V
IC904-7 VOLTAGE
0V
CHECK RT901, C920
1.6V±0.2V
IC904-9 5V
0V
CHECK 5V LINE
5V
CHECK IC904

21. Does not input key switchs

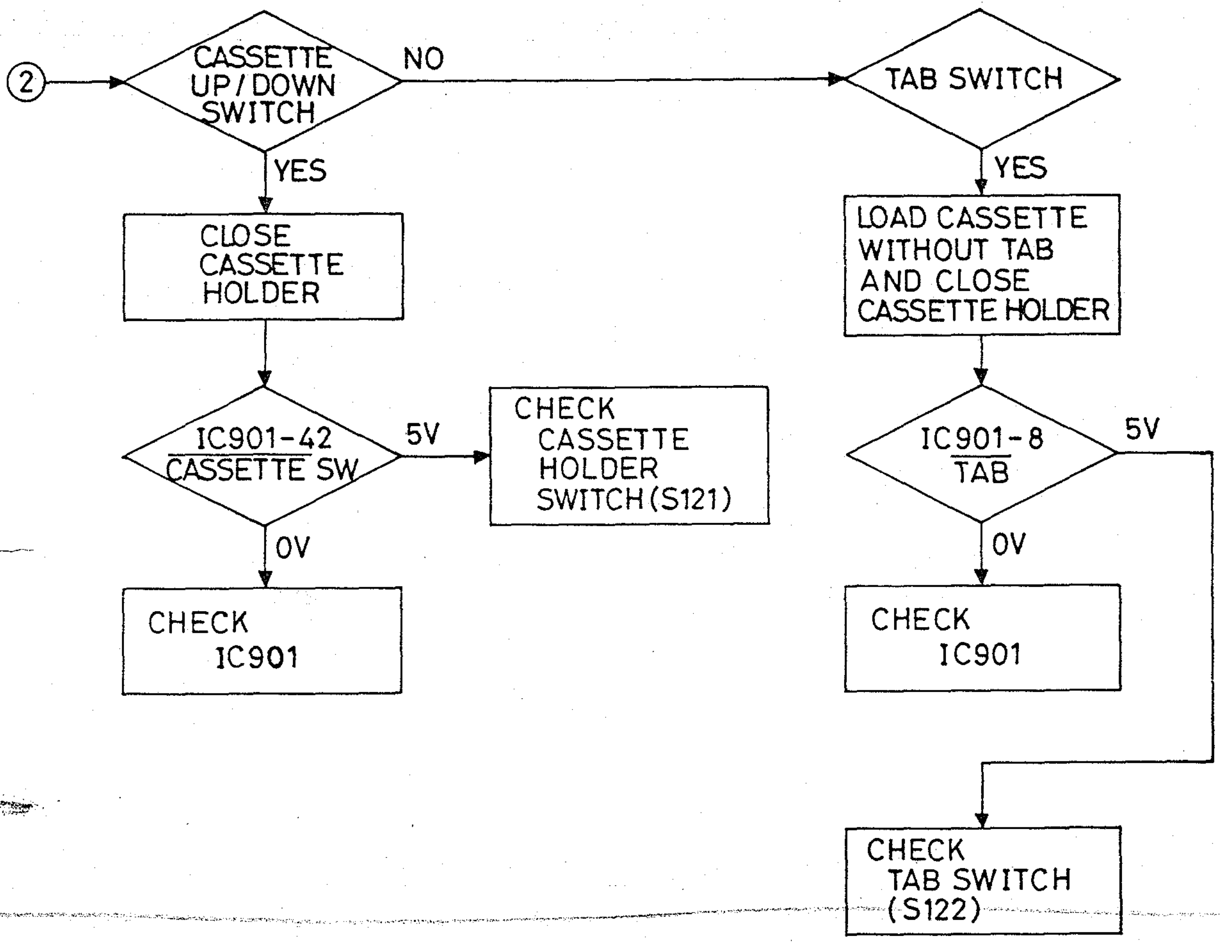

DOES NOT INPUT KEY SWITCHES
VTR AND CAMERA KEYS
EITHER
ALL
CHECK IC901
VTR KEYS
NO
YES
SET SELECT SW TO "VTR"
IC901-10 CAMERA / VTR
5V
CHECK SELECT SW (S050)
0V
IC901-35:PHASE 0 36:PHASE 1
NG
CHECK IC901
OK
PRESS FUNCTION KEY
IC901-18-20 MAT 0~MAT 2
NG
CHECK D050, D051, S051~S055
OK
CHECK IC901
3.8 ms
1.9ms
PHASE 0
PHASE 1
CAMERA KEYS
YES
SET SELECT SW TO "CAMERA"
IC901-10 CAMERA / VTR
0V
PG905-1 5V
0V
CHECK 5V LINE
5V
CHECK SELECT SW (S050)
5V
REVIEW VTR REC SW
EITHER OK
BOTH NG
CHECK IC901
REVIEW SWITCH
NO
YES
PRESS REVIEW SWITCH (S1603)
IC901-49 REVIEW SW
5V
CHECK REVIEW SWITCH (S1603)
0V
CHECK IC901
VTR REC SW
YES
PRESS VTR REC SW (S1604)
IC901-48 VTR REC SW
5V
CHECK VTR REC SW (S1604)
0V
CHECK IC901

IN / OUT	MAT 2	MAT 1	MAT 0
PHASE 1	PLAY	STOP	
PHASE 0	F. FWD	REWIND	PAUSE

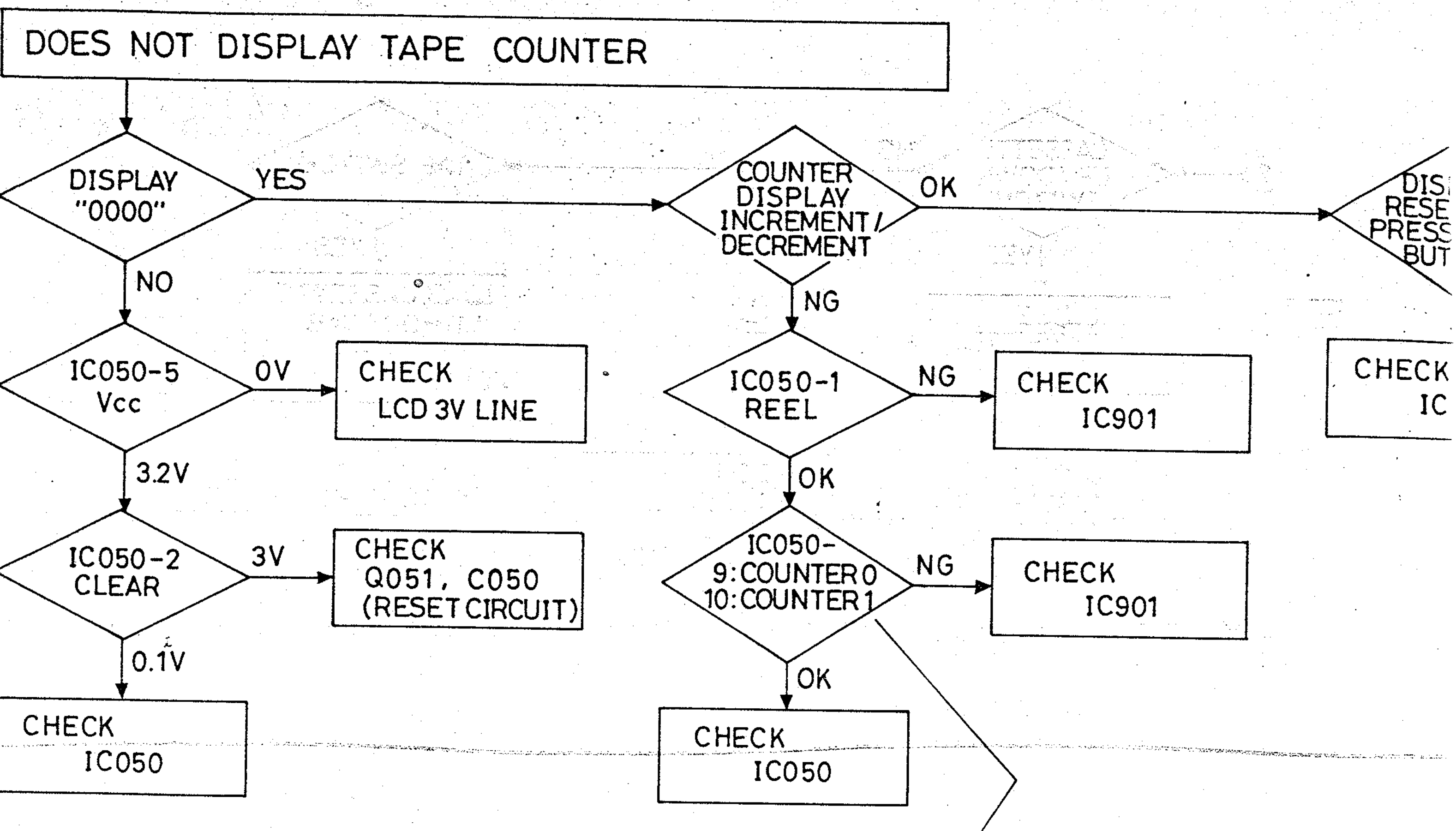
22. Does not detect troubles


DOES NOT DETECT TROUBLES
ALL TROUBLES
NO
ALL
CHECK IC901
TAPE END
NO
①
YES
BOTH REW END AND FWD END
EITHER OK
BOTH NG
3ms
100µs
IC901-63 END LAMP
NG
CHECK IC901
OK
PG125-1 DRIVE PULSE
NG
PG125-2 STBY 5V
0V
CHECK STBY 5V LINE
OK
CHECK IC901
5V
CHECK Q101, D125
REW END
NO
FWD END
YES
IC902-7 VOLTAGE
<2.7V
CHECK Q124
>2.7V
IC902-1 REW END
0V
CHECK IC902
5V
CHECK IC901
YES
IC902-5 VOLTAGE
<2.7V
CHECK Q123
>2.7V
IC902-2 FWD END
0V
CHECK IC902
5V
CHECK IC901
②
①
DEW
NO
YES
IC902-9 VOLTAGE
<0.6V
CHECK DEW SENSOR
>0.6V
IC902-14 DEW
0V
CHECK IC902
5V
CHECK IC901
REEL PULSE
NO
YES
IC902-11 REEL PULSE
NG
CHECK Q119
OK
IC902-13 REEL PULSE
NG
CHECK IC902
OK
CHECK IC901
MECHA STATE SWITCH
NO
②
YES
IC901-39~41 M STATE0~M STATE 2
NG
CHECK MECHANISM STATE SWITCH
YES
CHECK IC901

MECHA STATE POSITION	M STATE 2	M STATE 1	M STATE 0	MODE
EJECT	0	1	1	EJECT
UNLOADING STOP	0	1	0	
FWD / REW	1	1	0	FWD / REW
LOADING / UNLOADING	1	0	0	
REC PAUSE	1	0	1	REC PAUSE
PB / REC	0	0	1	REC/PB/PB PAUSE/ VISUAL SEARCH

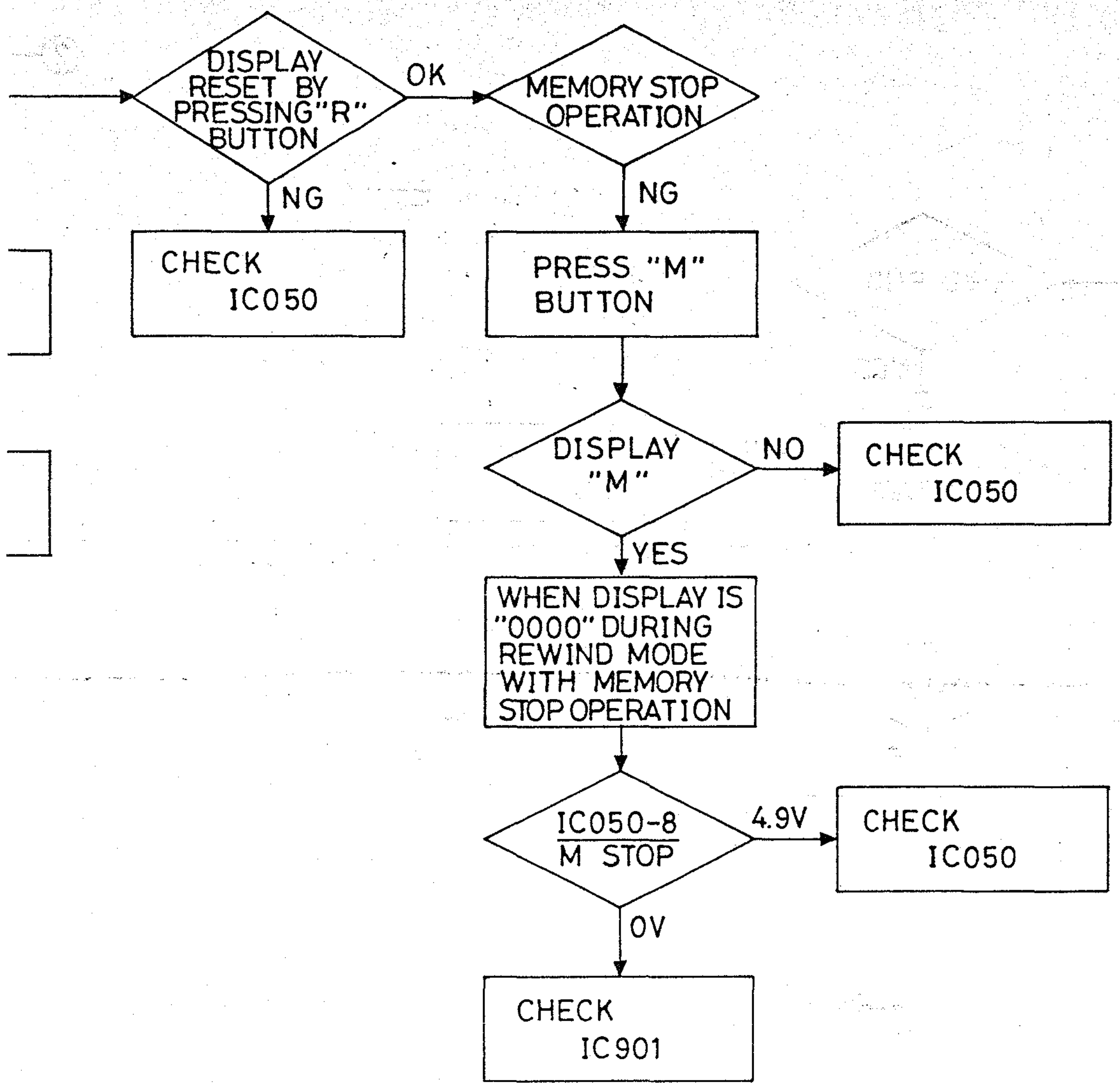

②
CASSETTE UP/DOWN SWITCH
NO
YES
TAB SWITCH
YES
CLOSE CASSETTE HOLDER
LOAD CASSETTE WITHOUT TAB AND CLOSE CASSETTE HOLDER
IC901-42 CASSETTE SW
5V
CHECK CASSETTE HOLDER SWITCH (S121)
0V
CHECK IC901
IC901-8 TAB
5V
0V
CHECK IC901
CHECK TAB SWITCH (S122)

23. Does not display tape counter

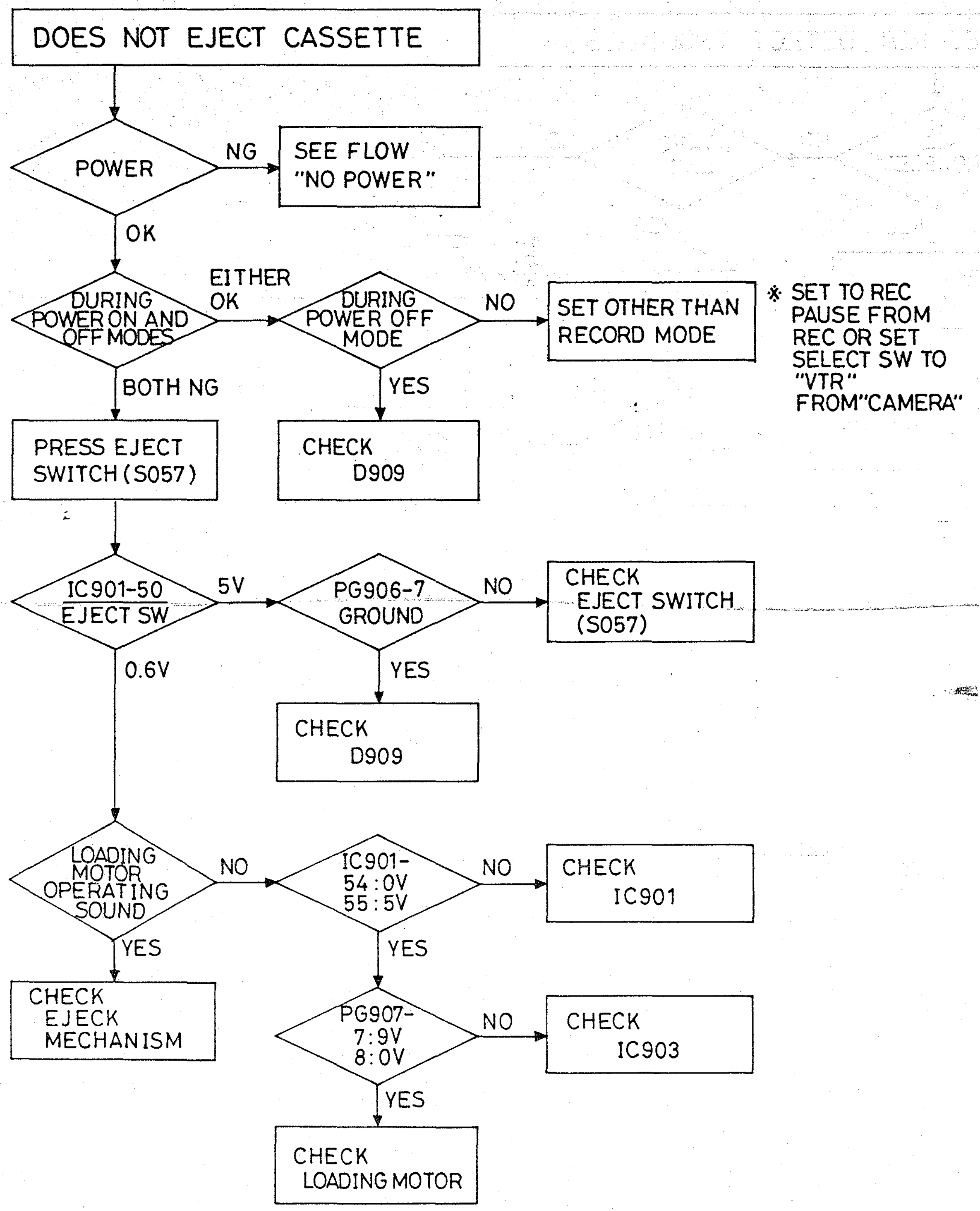

DOES NOT DISPLAY TAPE COUNTER
DISPLAY "0000"
YES
NO
IC050-5 Vcc
0V
CHECK LCD 3V LINE
3.2V
IC050-2 CLEAR
3V
CHECK Q051, C050 (RESET CIRCUIT)
0.1V
CHECK IC050
COUNTER DISPLAY INCREMENT/ DECREMENT
OK
NG
IC050-1 REEL
NG
CHECK IC901
OK
IC050- 9:COUNTER 0 10:COUNTER 1
NG
CHECK IC901
OK
CHECK IC050
DIS RESE PRESS BUT
CHECK IC

MODE	COUNTER 1	COUNTER 0	COUNTER
STOP/PAUSE	1	1	STOP
REC/PB/FWD	1	0	INCREMENT
REW	0	1	DECREMENT

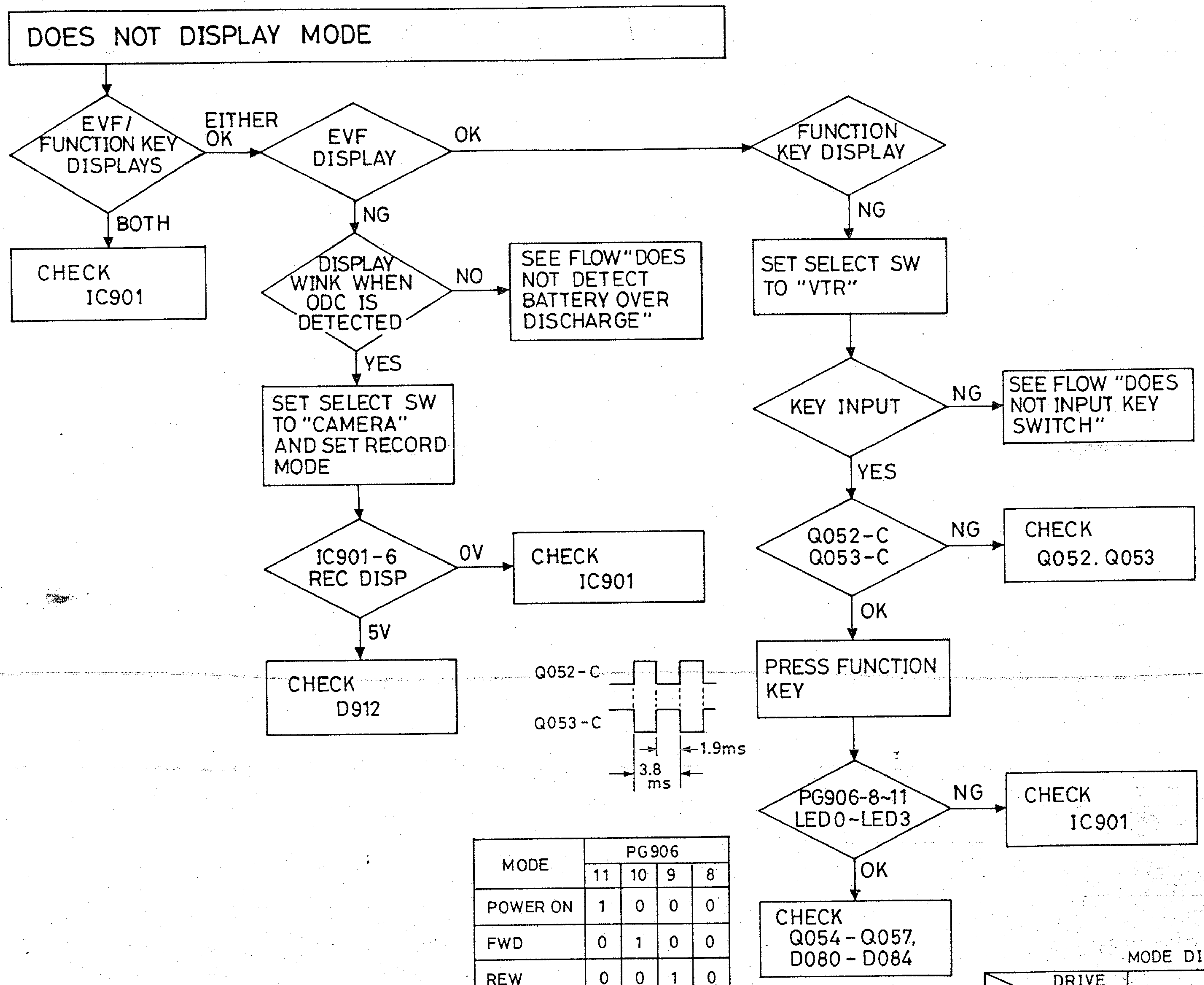
※ 1 : 3. 1V, 0 : 0.1V


DISPLAY RESET BY PRESSING "R" BUTTON
OK
MEMORY STOP OPERATION
NG
CHECK IC050
NG
PRESS "M" BUTTON
DISPLAY "M"
NO
CHECK IC050
YES
WHEN DISPLAY IS "0000" DURING REWIND MODE WITH MEMORY STOP OPERATION
IC050-8 M STOP
4.9V
CHECK IC050
0V
CHECK IC901

24. Does not eject cassette


DOES NOT EJECT CASSETTE
POWER
NG
SEE FLOW "NO POWER"
OK
DURING POWER ON AND OFF MODES
EITHER OK
DURING POWER OFF MODE
NO
SET OTHER THAN RECORD MODE
※ SET TO REC PAUSE FROM REC OR SET SELECT SW TO "VTR" FROM "CAMERA"
BOTH NG
YES
PRESS EJECT SWITCH (S057)
CHECK D909
IC901-50 EJECT SW
5V
PG906-7 GROUND
NO
CHECK EJECT SWITCH (S057)
0.6V
YES
CHECK D909
LOADING MOTOR OPERATING SOUND
NO
IC901-54 : 0V 55 : 5V
NO
CHECK IC901
YES
CHECK EJECK MECHANISM
YES
PG907-7 : 9V 8 : 0V
NO
CHECK IC903
YES
CHECK LOADING MOTOR

25. Does not display mode


DOES NOT DISPLAY MODE
EVF/ FUNCTION KEY DISPLAYS
EITHER OK
BOTH
CHECK IC901
EVF DISPLAY
OK
NG
DISPLAY WINK WHEN ODC IS DETECTED
NO
SEE FLOW "DOES NOT DETECT BATTERY OVER DISCHARGE"
YES
SET SELECT SW TO "CAMERA" AND SET RECORD MODE
IC901-6 REC DISP
0V
CHECK IC901
5V
CHECK D912
Q052-C
Q053-C
1.9ms
3.8 ms
FUNCTION KEY DISPLAY
NG
SET SELECT SW TO "VTR"
KEY INPUT
NG
SEE FLOW "DOES NOT INPUT KEY SWITCH"
YES
Q052-C Q053-C
NG
CHECK Q052. Q053
OK
PRESS FUNCTION KEY
PG906-8~11 LED0~LED3
NG
CHECK IC901
OK
CHECK Q054 - Q057, D080 - D084

MODE	PG906			
	11	10	9	8
POWER ON	1	0	0	0
FWD	0	1	0	0
REW	0	0	1	0
PAUSE	0	0	0	1
PB	0	1	0	0

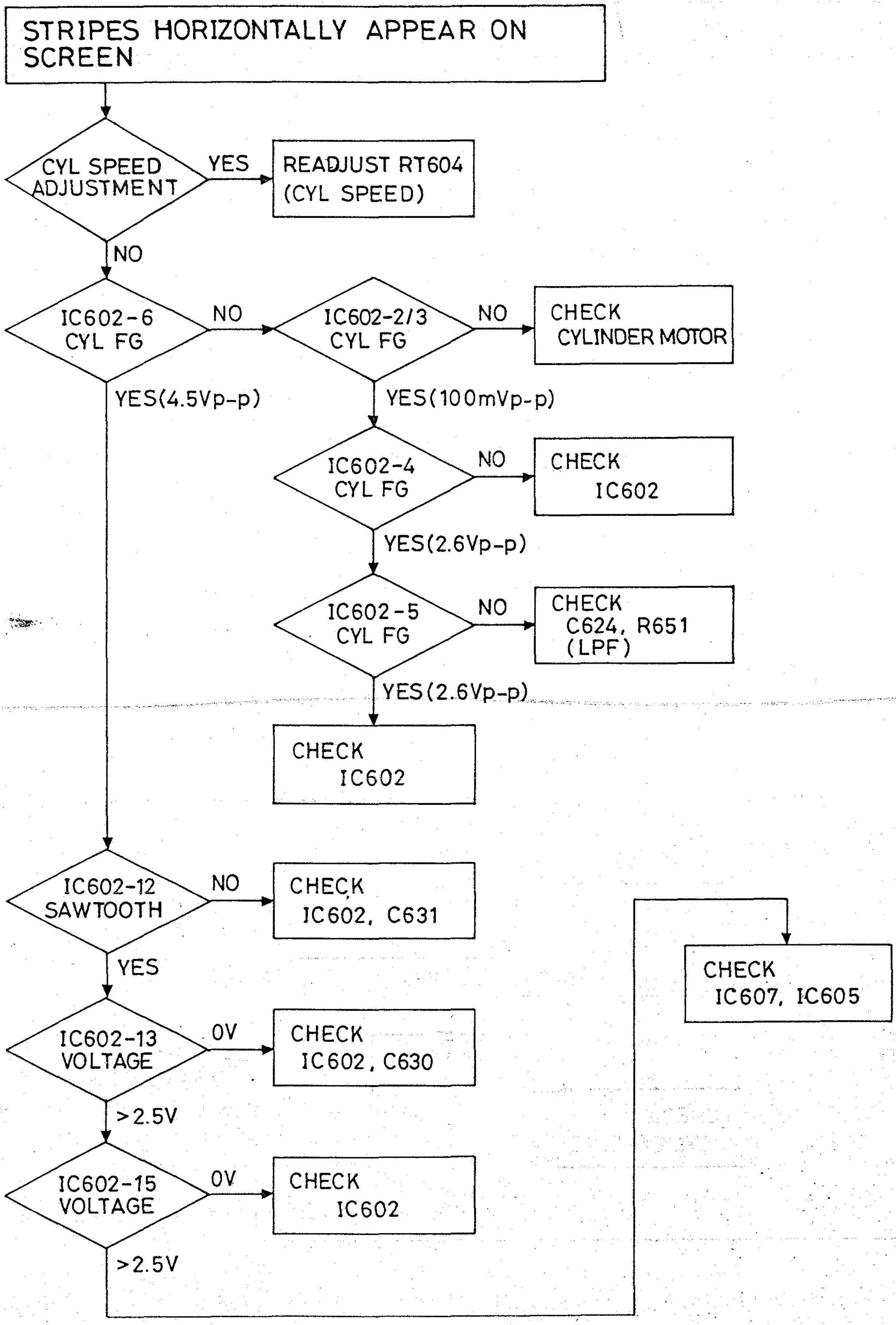
* 1 : 5Vp-p, 0 : 0V

MODE DISPLAY

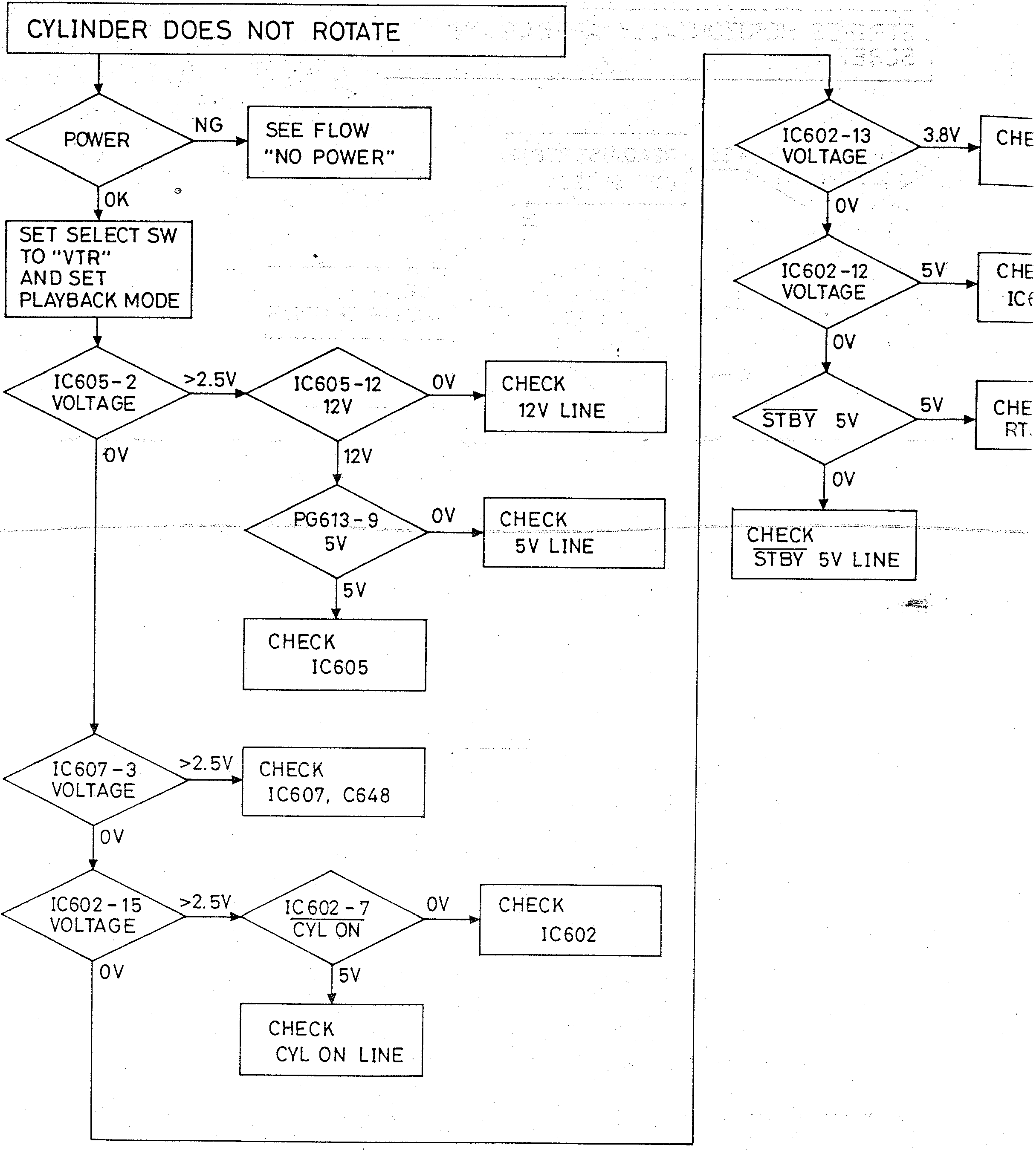
DRIVE PULSE / SCAN PULSE	LED 3	LED 2	LED 1	LED 0
PHASE 0	POWER	F. FWD	REWIND	PAUSE
PHASE 1		PLAY		

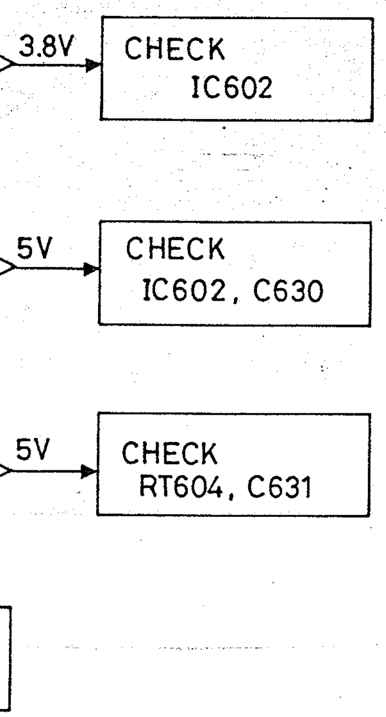
26. St

26. Stripes horizontally appear on screen

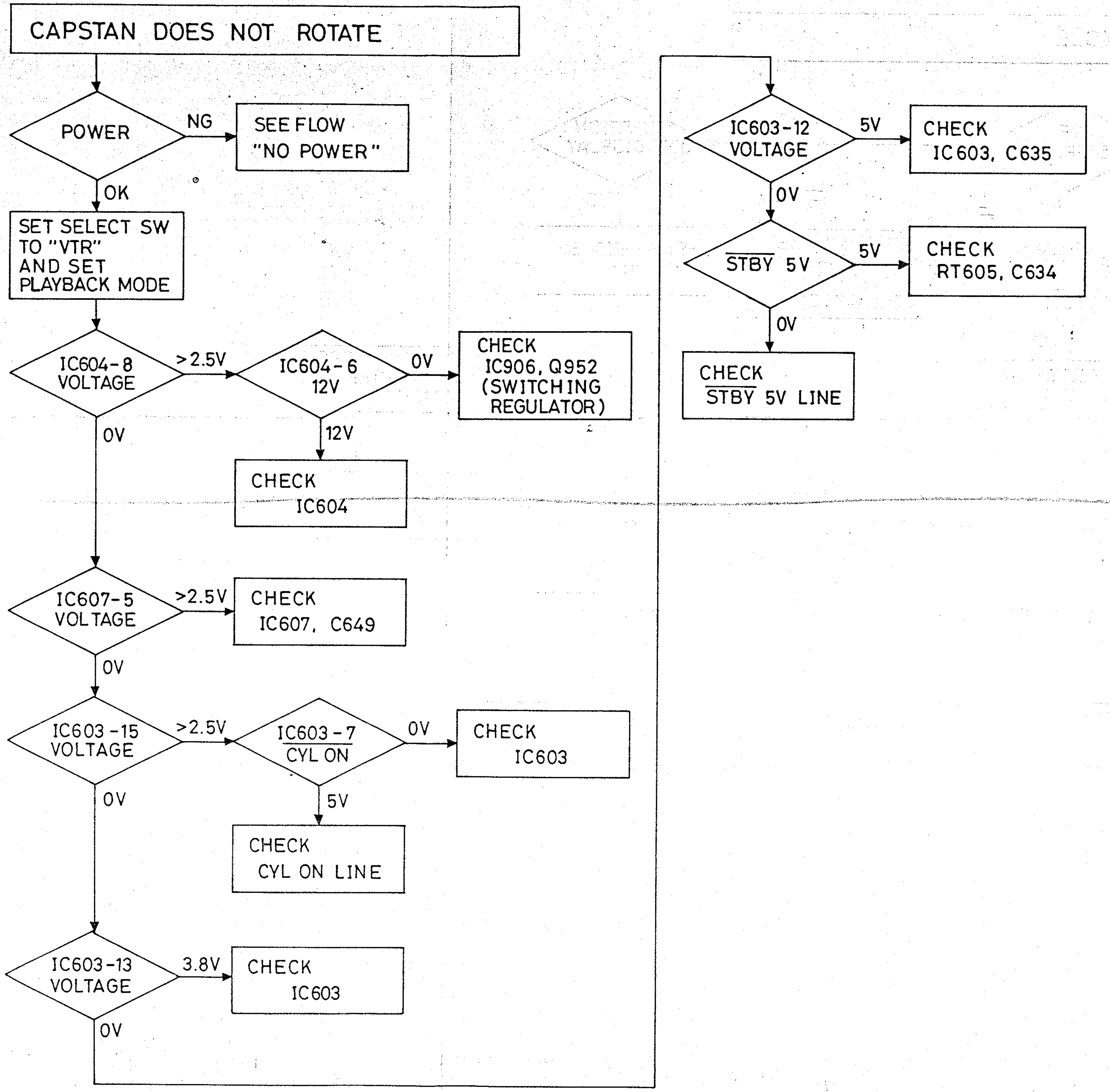

STRIPES HORIZONTALLY APPEAR ON SCREEN
CYL SPEED ADJUSTMENT
YES
READJUST RT604 (CYL SPEED)
NO
IC602-6 CYL FG
NO
IC602-2/3 CYL FG
NO
CHECK CYLINDER MOTOR
YES(4.5Vp-p)
YES(100mVp-p)
IC602-4 CYL FG
NO
CHECK IC602
YES(2.6Vp-p)
IC602-5 CYL FG
NO
CHECK C624, R651 (LPF)
YES(2.6Vp-p)
CHECK IC602
IC602-12 SAWTOOTH
NO
CHECK IC602, C631
YES
IC602-13 VOLTAGE
0V
CHECK IC602, C630
>2.5V
IC602-15 VOLTAGE
0V
CHECK IC602
>2.5V
CHECK IC607, IC605

27. Cylinder does not rotate

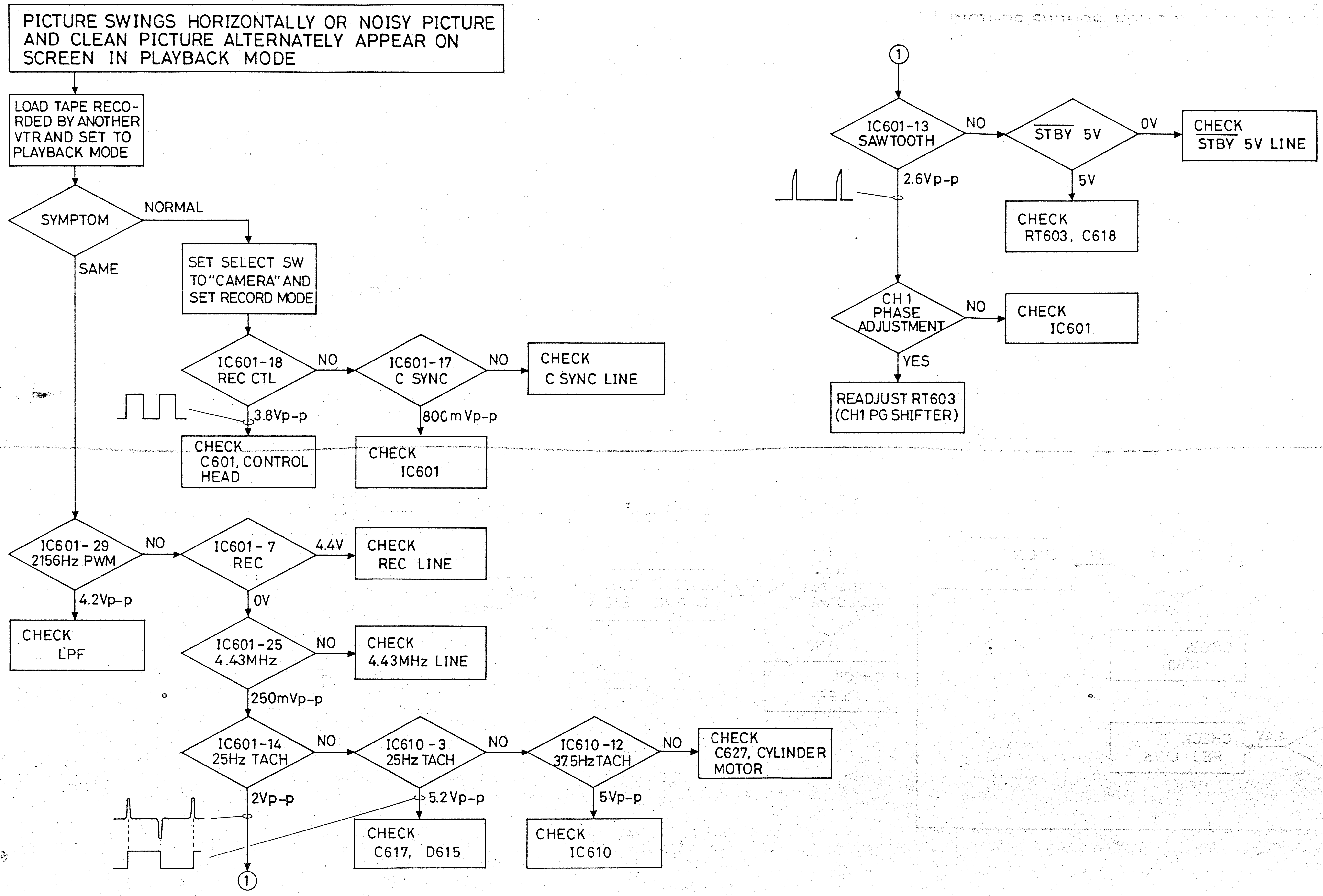

CYLINDER DOES NOT ROTATE
POWER
NG
SEE FLOW "NO POWER"
OK
SET SELECT SW TO "VTR" AND SET PLAYBACK MODE
IC605-2 VOLTAGE
>2.5V
IC605-12 12V
0V
CHECK 12V LINE
12V
PG613-9 5V
0V
CHECK 5V LINE
5V
CHECK IC605
0V
IC607-3 VOLTAGE
>2.5V
CHECK IC607, C648
0V
IC602-15 VOLTAGE
>2.5V
IC602-7 CYL ON
0V
CHECK IC602
5V
CHECK CYL ON LINE
0V
IC602-13 VOLTAGE
3.8V
CHE
0V
IC602-12 VOLTAGE
5V
CHE IC6
0V
STBY 5V
5V
CHE RT
0V
CHECK STBY 5V LINE


3.8V
CHECK IC602
5V
CHECK IC602, C630
5V
CHECK RT604, C631

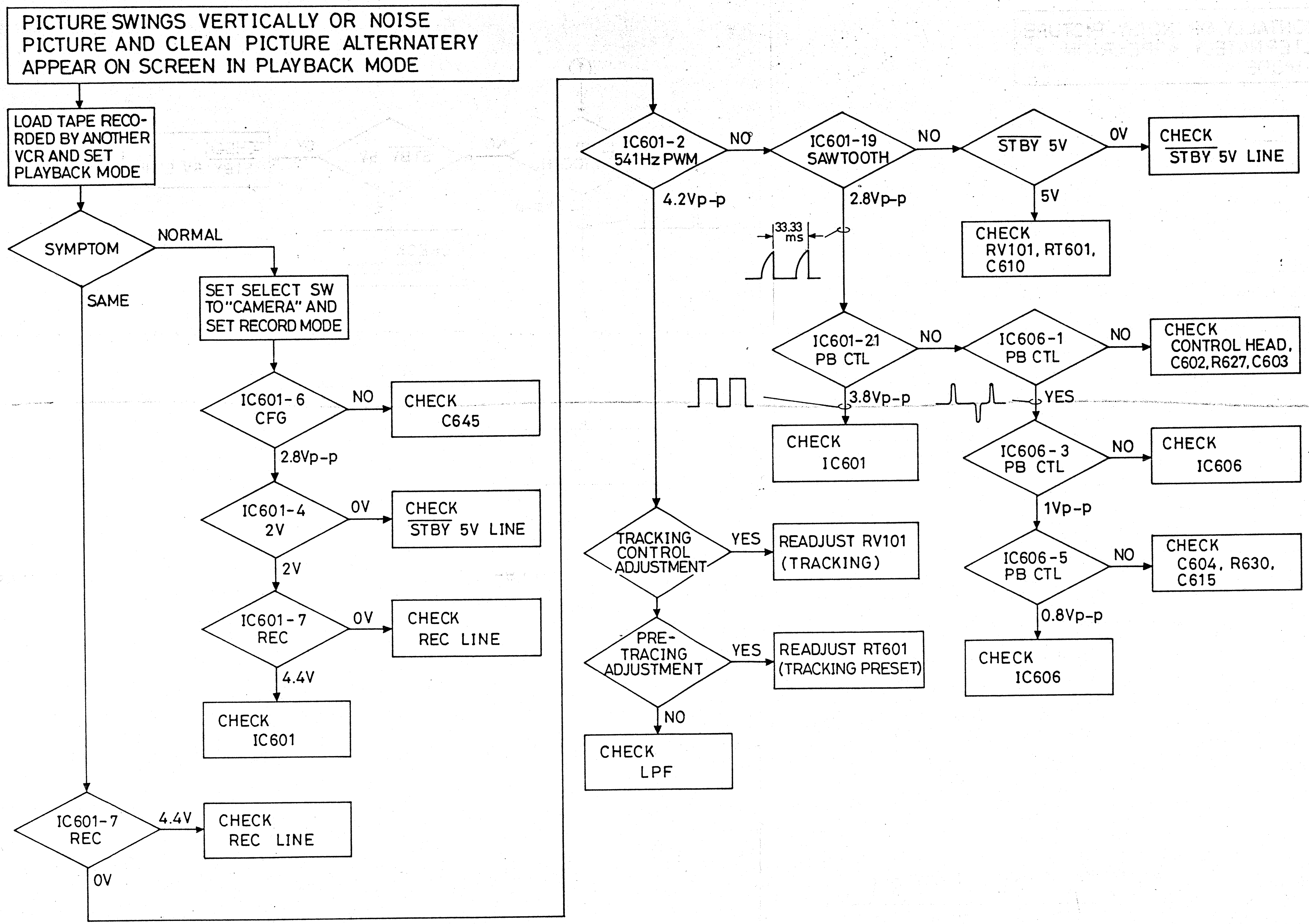
28. Capstan does not rotate


CAPSTAN DOES NOT ROTATE
POWER
NG
SEE FLOW "NO POWER"
OK
SET SELECT SW TO "VTR" AND SET PLAYBACK MODE
IC604-8 VOLTAGE
>2.5V
IC604-6 12V
0V
CHECK IC906, Q952 (SWITCHING REGULATOR)
12V
CHECK IC604
0V
IC607-5 VOLTAGE
>2.5V
CHECK IC607, C649
0V
IC603-15 VOLTAGE
>2.5V
IC603-7 CYL ON
0V
CHECK IC603
5V
CHECK CYL ON LINE
0V
IC603-13 VOLTAGE
3.8V
CHECK IC603
0V
IC603-12 VOLTAGE
5V
CHECK IC603, C635
0V
STBY 5V
5V
CHECK RT605, C634
0V
CHECK STBY 5V LINE

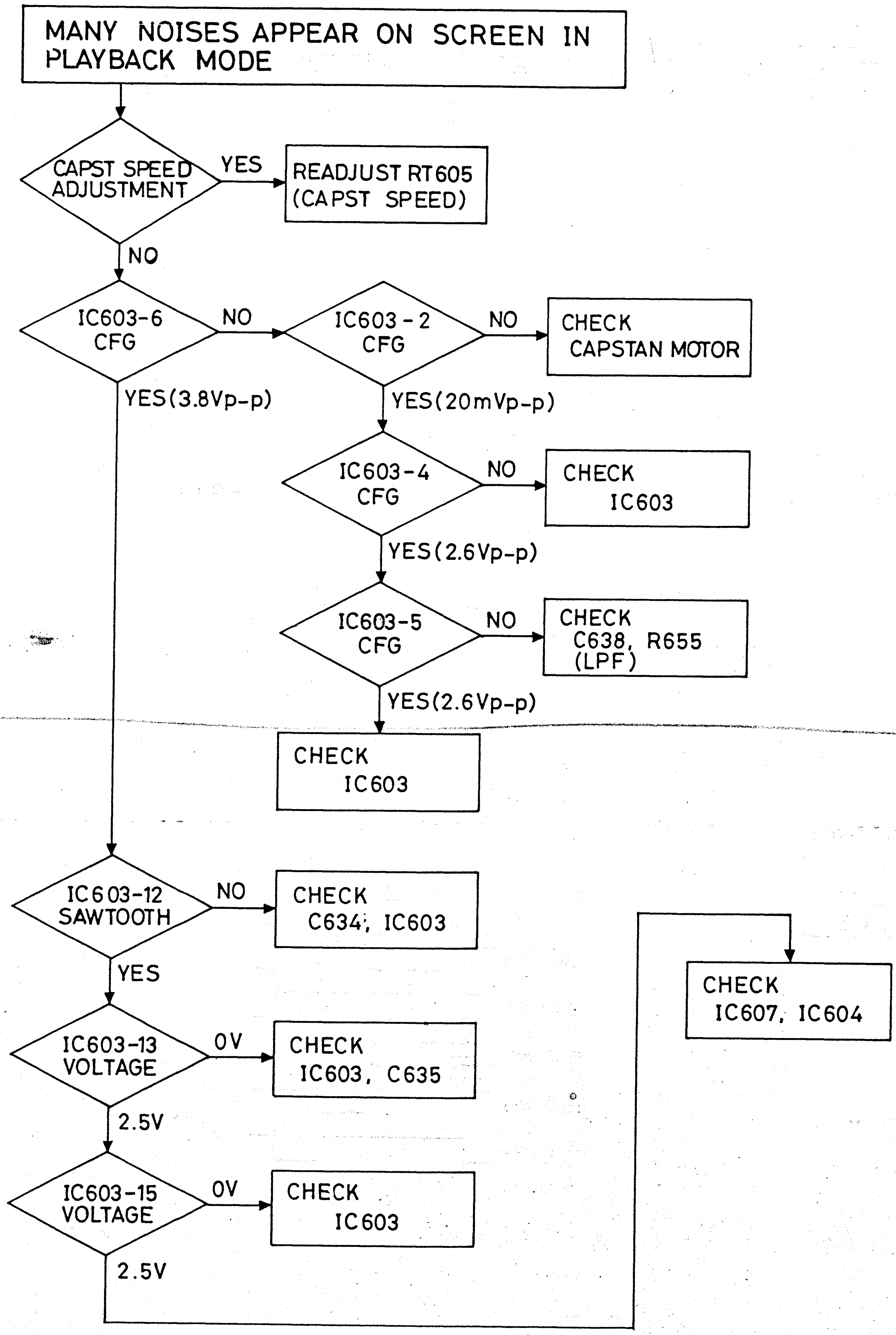
29. Picture swings horizontally or noise picture and clean picture alternately appear on screen in playback mode


PICTURE SWINGS HORIZONTALLY OR NOISY PICTURE AND CLEAN PICTURE ALTERNATELY APPEAR ON SCREEN IN PLAYBACK MODE
LOAD TAPE RECORDED BY ANOTHER VTR AND SET TO PLAYBACK MODE
SYMPTOM
NORMAL
SAME
SET SELECT SW TO "CAMERA" AND SET RECORD MODE
IC601-18 REC CTL
NO
3.8Vp-p
CHECK C601, CONTROL HEAD
IC601-17 C SYNC
NO
CHECK C SYNC LINE
800mVp-p
CHECK IC601
IC601-29 2156Hz PWM
NO
4.2Vp-p
CHECK LPF
IC601-7 REC
4.4V
CHECK REC LINE
0V
IC601-25 4.43MHz
NO
CHECK 4.43MHz LINE
250mVp-p
IC601-14 25Hz TACH
NO
2Vp-p
IC610-3 25Hz TACH
NO
5.2Vp-p
CHECK C617, D615
IC610-12 37.5Hz TACH
NO
CHECK C627, CYLINDER MOTOR
5Vp-p
CHECK IC610
①
①
IC601-13 SAWTOOTH
NO
STBY 5V
0V
CHECK STBY 5V LINE
5V
CHECK RT603, C618
2.6Vp-p
CH1 PHASE ADJUSTMENT
NO
CHECK IC601
YES
READJUST RT603 (CH1 PG SHIFTER)

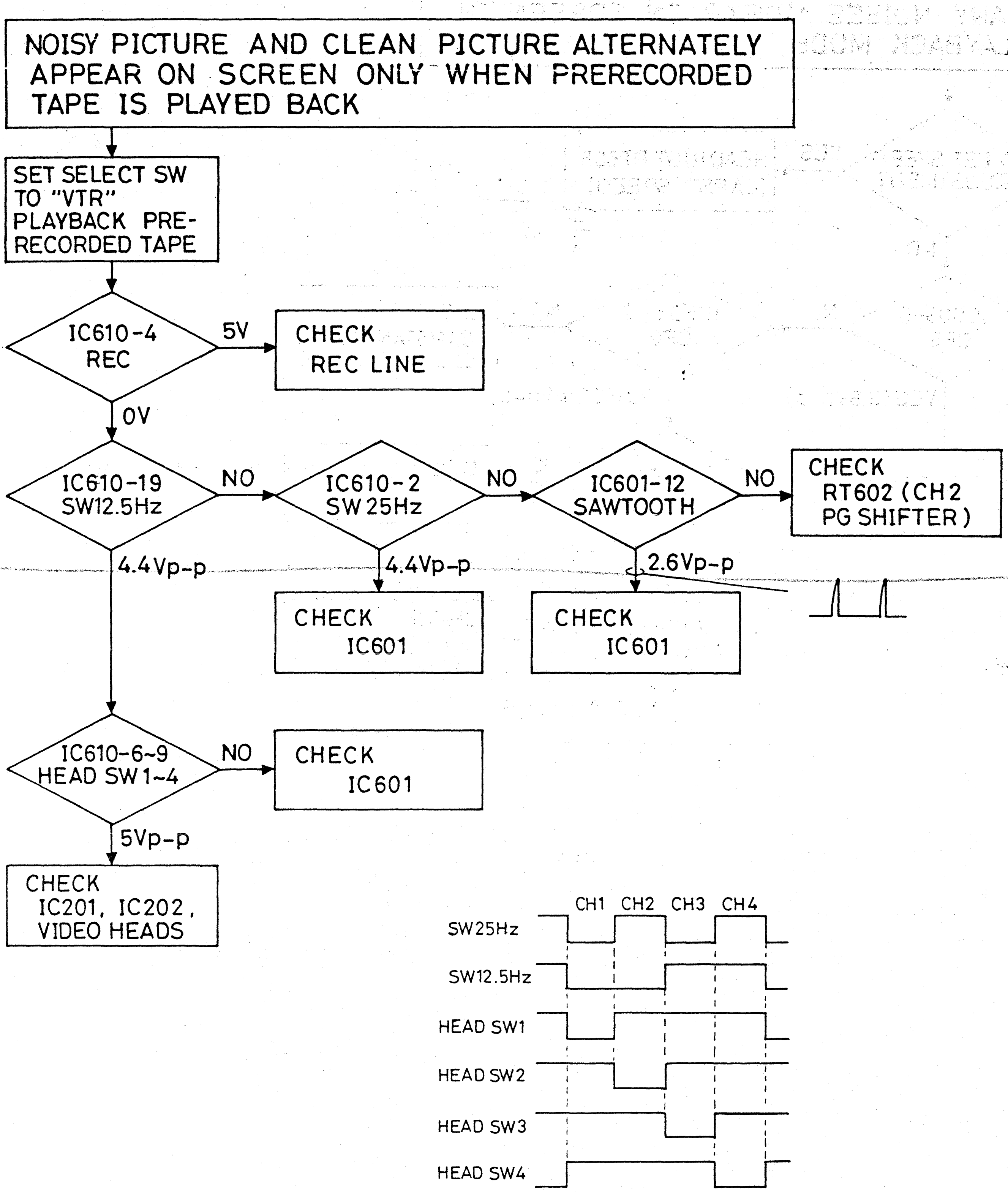
30. Picture swings vertically or noise picture and clean picture alternately appear on screen in playback mode


PICTURE SWINGS VERTICALLY OR NOISE PICTURE AND CLEAN PICTURE ALTERNATERY APPEAR ON SCREEN IN PLAYBACK MODE
LOAD TAPE RECORDED BY ANOTHER VCR AND SET PLAYBACK MODE
SYMPTOM
NORMAL
SAME
SET SELECT SW TO "CAMERA" AND SET RECORD MODE
IC601-6 CFG
NO
CHECK C645
2.8Vp-p
IC601-4 2V
0V
CHECK STBY 5V LINE
2V
IC601-7 REC
0V
CHECK REC LINE
4.4V
CHECK IC601
IC601-7 REC
4.4V
CHECK REC LINE
0V
IC601-2 541Hz PWM
NO
4.2Vp-p
IC601-19 SAWTOOTH
NO
2.8Vp-p
33.33 ms
STBY 5V
0V
CHECK STBY 5V LINE
5V
CHECK RV101, RT601, C610
IC601-21 PB CTL
NO
3.8Vp-p
CHECK IC601
IC606-1 PB CTL
NO
CHECK CONTROL HEAD, C602, R627, C603
YES
IC606-3 PB CTL
NO
CHECK IC606
1Vp-p
IC606-5 PB CTL
NO
CHECK C604, R630, C615
0.8Vp-p
CHECK IC606
TRACKING CONTROL ADJUSTMENT
YES
READJUST RV101 (TRACKING)
PRE-TRACING ADJUSTMENT
YES
READJUST RT601 (TRACKING PRESET)
NO
CHECK LPF

31. Many noise appear on screen in playback mode

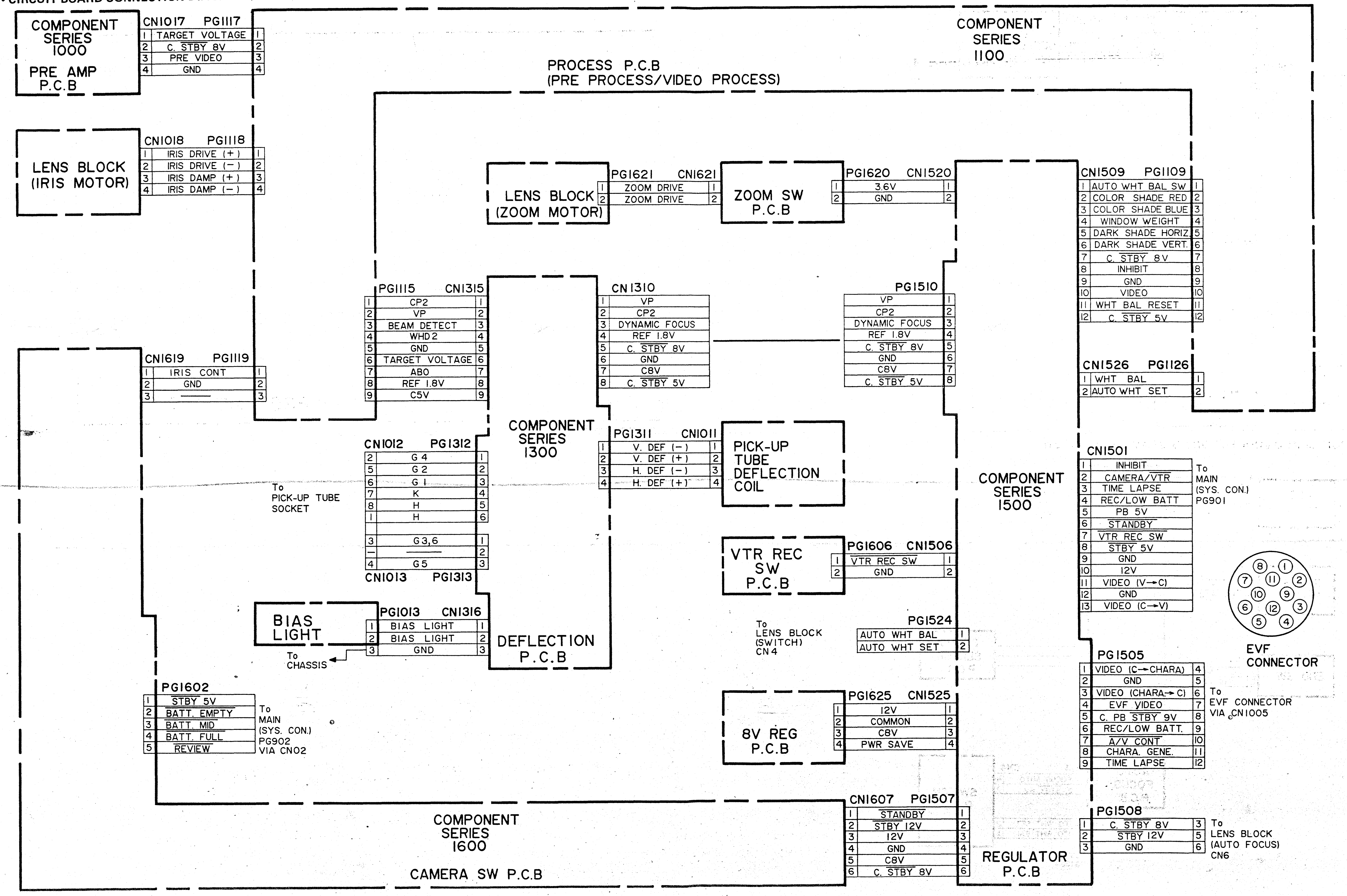

MANY NOISES APPEAR ON SCREEN IN PLAYBACK MODE
CAPST SPEED ADJUSTMENT
YES
READJUST RT605 (CAPST SPEED)
NO
IC603-6 CFG
NO
IC603 - 2 CFG
NO
CHECK CAPSTAN MOTOR
YES(3.8Vp-p)
YES(20mVp-p)
IC603-4 CFG
NO
CHECK IC603
YES(2.6Vp-p)
IC603-5 CFG
NO
CHECK C638, R655 (LPF)
YES(2.6Vp-p)
CHECK IC603
IC603-12 SAWTOOTH
NO
CHECK C634, IC603
YES
IC603-13 VOLTAGE
0V
CHECK IC603, C635
2.5V
IC603-15 VOLTAGE
0V
CHECK IC603
2.5V
CHECK IC607, IC604

32. Noisy picture and clean picture alternately appear on screen only when prerecorded tape is played back

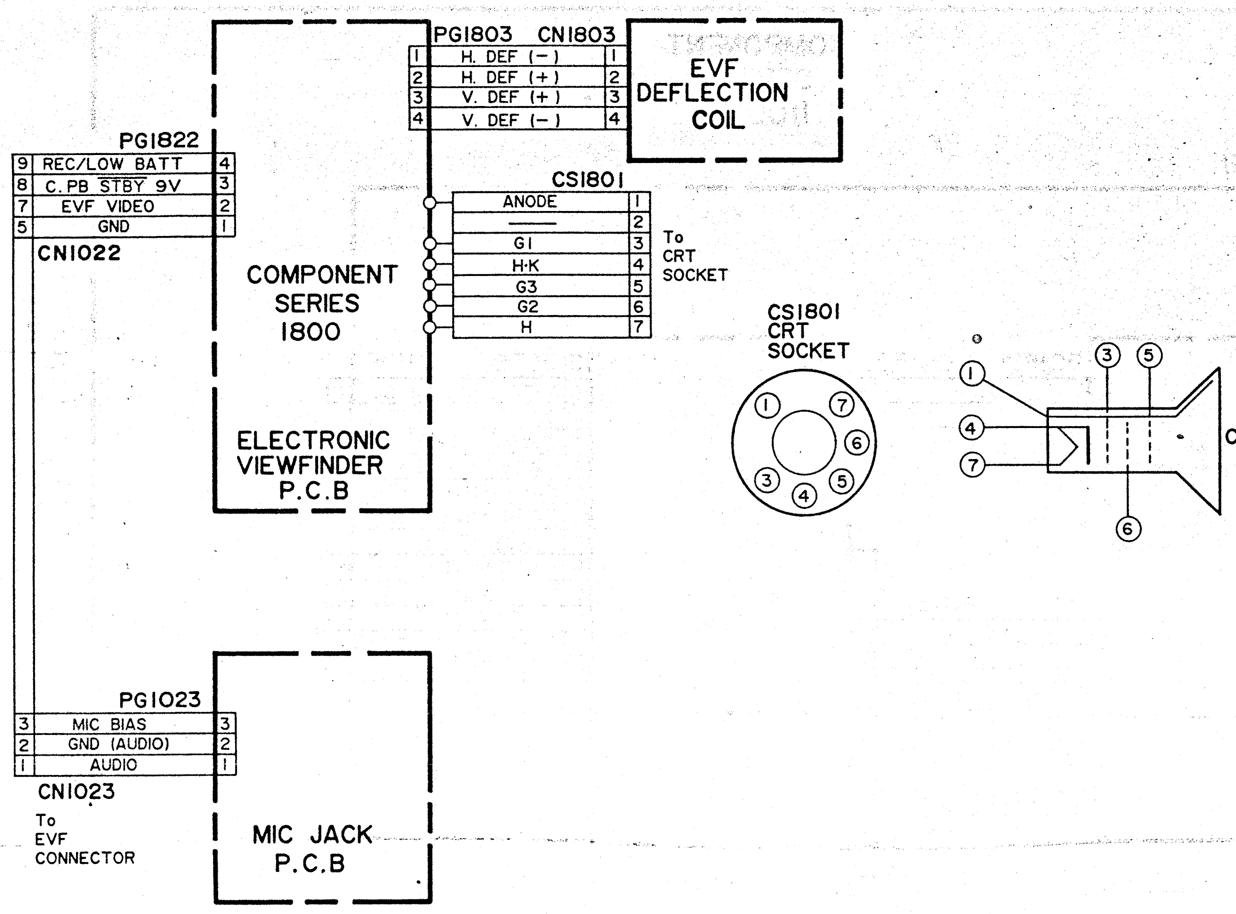

NOISY PICTURE AND CLEAN PICTURE ALTERNATELY APPEAR ON SCREEN ONLY WHEN PRERECORDED TAPE IS PLAYED BACK
SET SELECT SW TO "VTR" PLAYBACK PRE-RECORDED TAPE
IC610-4 REC
5V
CHECK REC LINE
0V
IC610-19 SW12.5Hz
NO
IC610-2 SW 25Hz
NO
IC601-12 SAWTOOTH
NO
CHECK RT602 (CH2 PG SHIFTER)
4.4Vp-p
4.4Vp-p
CHECK IC601
2.6Vp-p
CHECK IC601
IC610-6~9 HEAD SW 1~4
NO
CHECK IC601
5Vp-p
CHECK IC201, IC202, VIDEO HEADS
CH1
CH2
CH3
CH4
SW25Hz
SW12.5Hz
HEAD SW1
HEAD SW2
HEAD SW3
HEAD SW4

BLOCK DIAGRAMS

• CIRCUIT BOARD CONNECTION DIAGRAM (CAMERA)

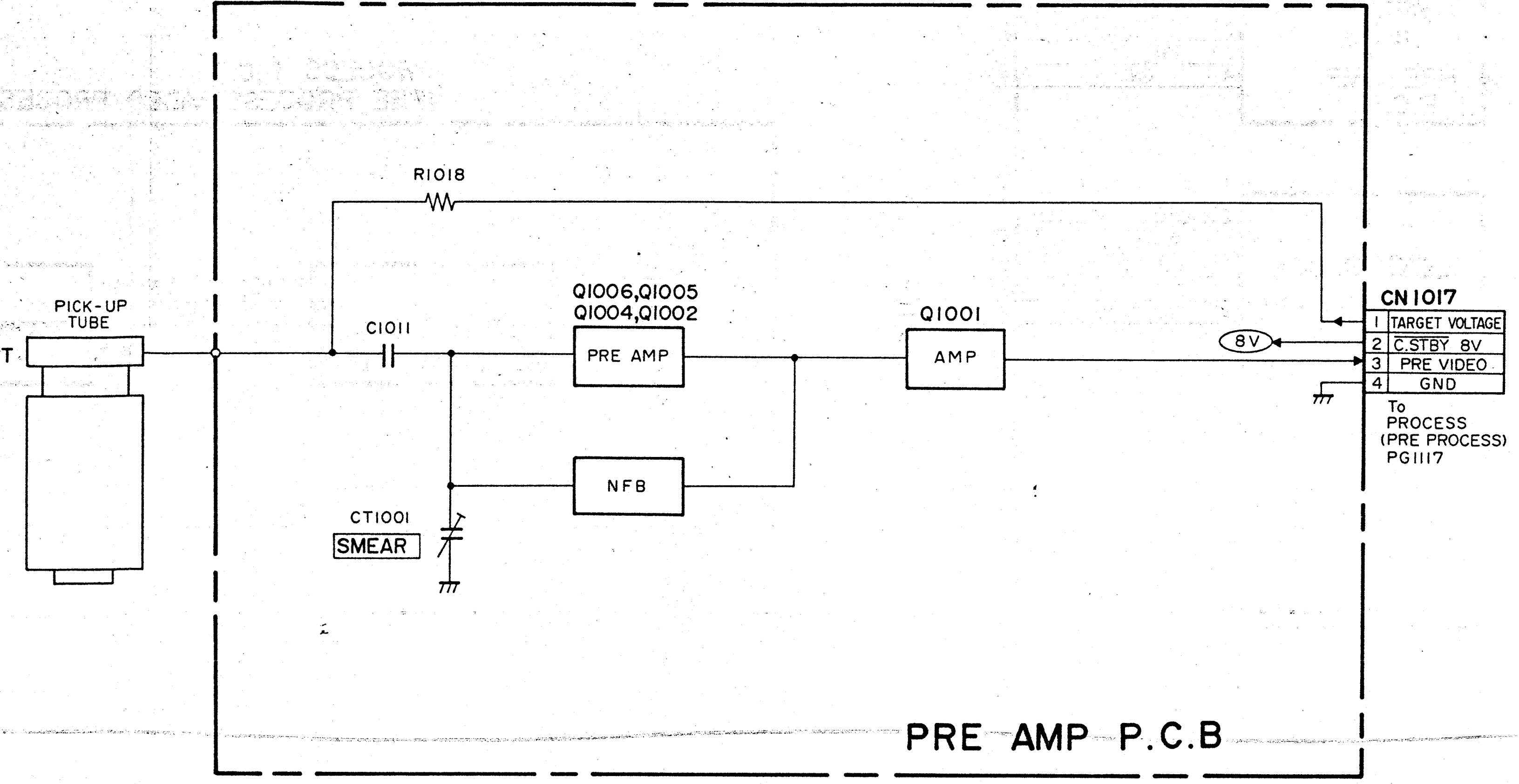

COMPONENT SERIES 1000
PRE AMP P.C.B
CN1017 PG1117
1 TARGET VOLTAGE 1
2 C. STBY 8V 2
3 PRE VIDEO 3
4 GND 4
LENS BLOCK (IRIS MOTOR)
CN1018 PG1118
1 IRIS DRIVE (+) 1
2 IRIS DRIVE (−) 2
3 IRIS DAMP (+) 3
4 IRIS DAMP (−) 4
COMPONENT SERIES 1100
PROCESS P.C.B
(PRE PROCESS/VIDEO PROCESS)
LENS BLOCK (ZOOM MOTOR)
PG1621 CN1621
1 ZOOM DRIVE 1
2 ZOOM DRIVE 2
ZOOM SW P.C.B
PG1620 CN1520
1 3.6V 1
2 GND 2
CN1509 PG1109
1 AUTO WHT BAL SW 1
2 COLOR SHADE RED 2
3 COLOR SHADE BLUE 3
4 WINDOW WEIGHT 4
5 DARK SHADE HORIZ. 5
6 DARK SHADE VERT. 6
7 C. STBY 8V 7
8 INHIBIT 8
9 GND 9
10 VIDEO 10
11 WHT BAL RESET 11
12 C. STBY 5V 12
CN1619 PG1119
1 IRIS CONT 1
2 GND 2
3 ——— 3
PG1115 CN1315
1 CP2 1
2 VP 2
3 BEAM DETECT 3
4 WHD 2 4
5 GND 5
6 TARGET VOLTAGE 6
7 ABO 7
8 REF 1.8V 8
9 C5V 9
CN1310
1 VP
2 CP2
3 DYNAMIC FOCUS
4 REF 1.8V
5 C. STBY 8V
6 GND
7 C8V
8 C. STBY 5V
PG1510
VP 1
CP2 2
DYNAMIC FOCUS 3
REF 1.8V 4
C. STBY 8V 5
GND 6
C8V 7
C. STBY 5V 8
CN1526 PG1126
1 WHT BAL 1
2 AUTO WHT SET 2
COMPONENT SERIES 1300
CN1012 PG1312
2 G 4 1
5 G 2 2
6 G 1 3
7 K 4
8 H 5
1 H 6
3 G 3,6 1
— ——— 2
4 G 5 3
CN1013 PG1313
To PICK-UP TUBE SOCKET
PG1311 CN1011
1 V. DEF (−) 1
2 V. DEF (+) 2
3 H. DEF (−) 3
4 H. DEF (+) 4
PICK-UP TUBE DEFLECTION COIL
COMPONENT SERIES 1500
CN1501
1 INHIBIT
2 CAMERA/VTR
3 TIME LAPSE
4 REC/LOW BATT
5 PB 5V
6 STANDBY
7 VTR REC SW
8 STBY 5V
9 GND
10 12V
11 VIDEO (V→C)
12 GND
13 VIDEO (C→V)
To MAIN (SYS. CON.) PG901
VTR REC SW P.C.B
PG1606 CN1506
1 VTR REC SW 1
2 GND 2
8 1 11 2 7 10 9 6 12 3 5 4
EVF CONNECTOR
BIAS LIGHT
PG1013 CN1316
1 BIAS LIGHT 1
2 BIAS LIGHT 2
3 GND 3
To CHASSIS
DEFLECTION P.C.B
To LENS BLOCK (SWITCH) CN4
PG1524
AUTO WHT BAL 1
AUTO WHT SET 2
PG1505
1 VIDEO (C→CHARA) 4
2 GND 5
3 VIDEO (CHARA→C) 6
4 EVF VIDEO 7
5 C. PB STBY 9V 8
6 REC/LOW BATT. 9
7 A/V CONT 10
8 CHARA. GENE. 11
9 TIME LAPSE 12
To EVF CONNECTOR VIA CN1005
PG1602
1 STBY 5V
2 BATT. EMPTY
3 BATT. MID
4 BATT. FULL
5 REVIEW
To MAIN (SYS. CON.) PG902 VIA CN02
8V REG P.C.B
PG1625 CN1525
1 12V 1
2 COMMON 2
3 C8V 3
4 PWR SAVE 4
CN1607 PG1507
1 STANDBY 1
2 STBY 12V 2
3 12V 3
4 GND 4
5 C8V 5
6 C. STBY 8V 6
PG1508
1 C. STBY 8V 3
2 STBY 12V 5
3 GND 6
To LENS BLOCK (AUTO FOCUS) CN6
COMPONENT SERIES 1600
CAMERA SW P.C.B
REGULATOR P.C.B

• CIRCUIT BOARD CONNECTION DIAGRAM (EVF)



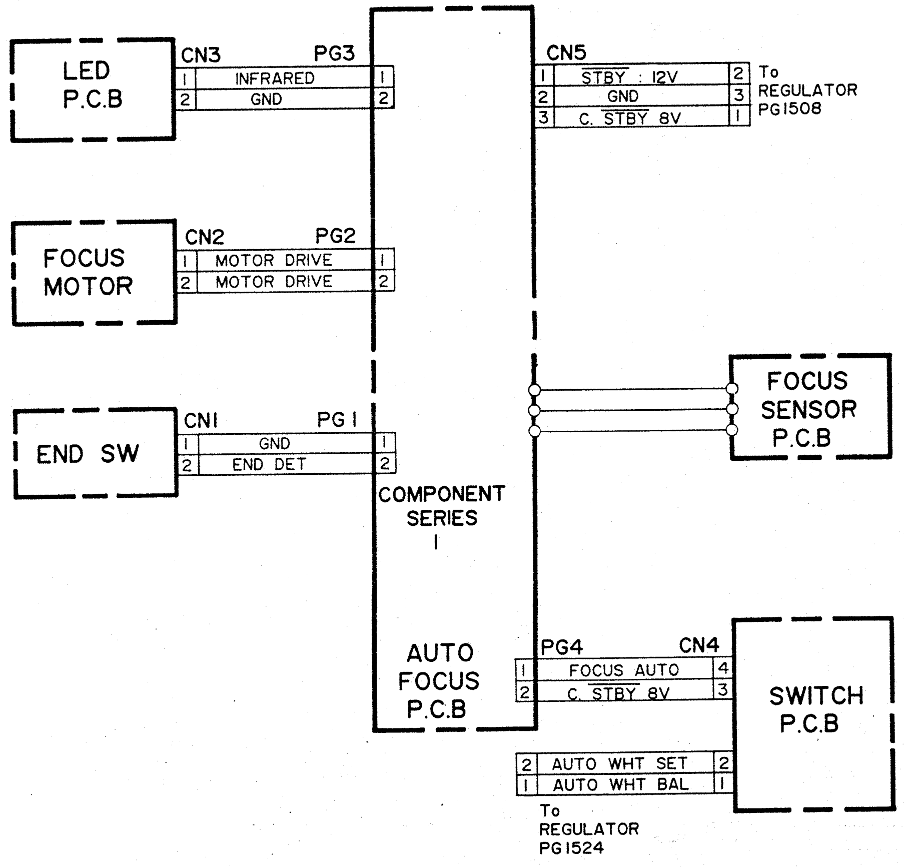
PG1803
CN1803
1 H. DEF (−) 1
2 H. DEF (+) 2
3 V. DEF (+) 3
4 V. DEF (−) 4
EVF DEFLECTION COIL
PG1822
9 REC/LOW BATT 4
8 C.PB STBY 9V 3
7 EVF VIDEO 2
5 GND 1
CN1022
COMPONENT SERIES 1800
ELECTRONIC VIEWFINDER P.C.B
CS1801
ANODE 1
2
G1 3
H·K 4
G3 5
G2 6
H 7
To CRT SOCKET
CS1801 CRT SOCKET
①
②
③
④
⑤
⑥
⑦
CRT
PG1023
3 MIC BIAS 3
2 GND (AUDIO) 2
1 AUDIO 1
CN1023
To EVF CONNECTOR
MIC JACK P.C.B

• PRE AMP BLOCK DIAGRAM



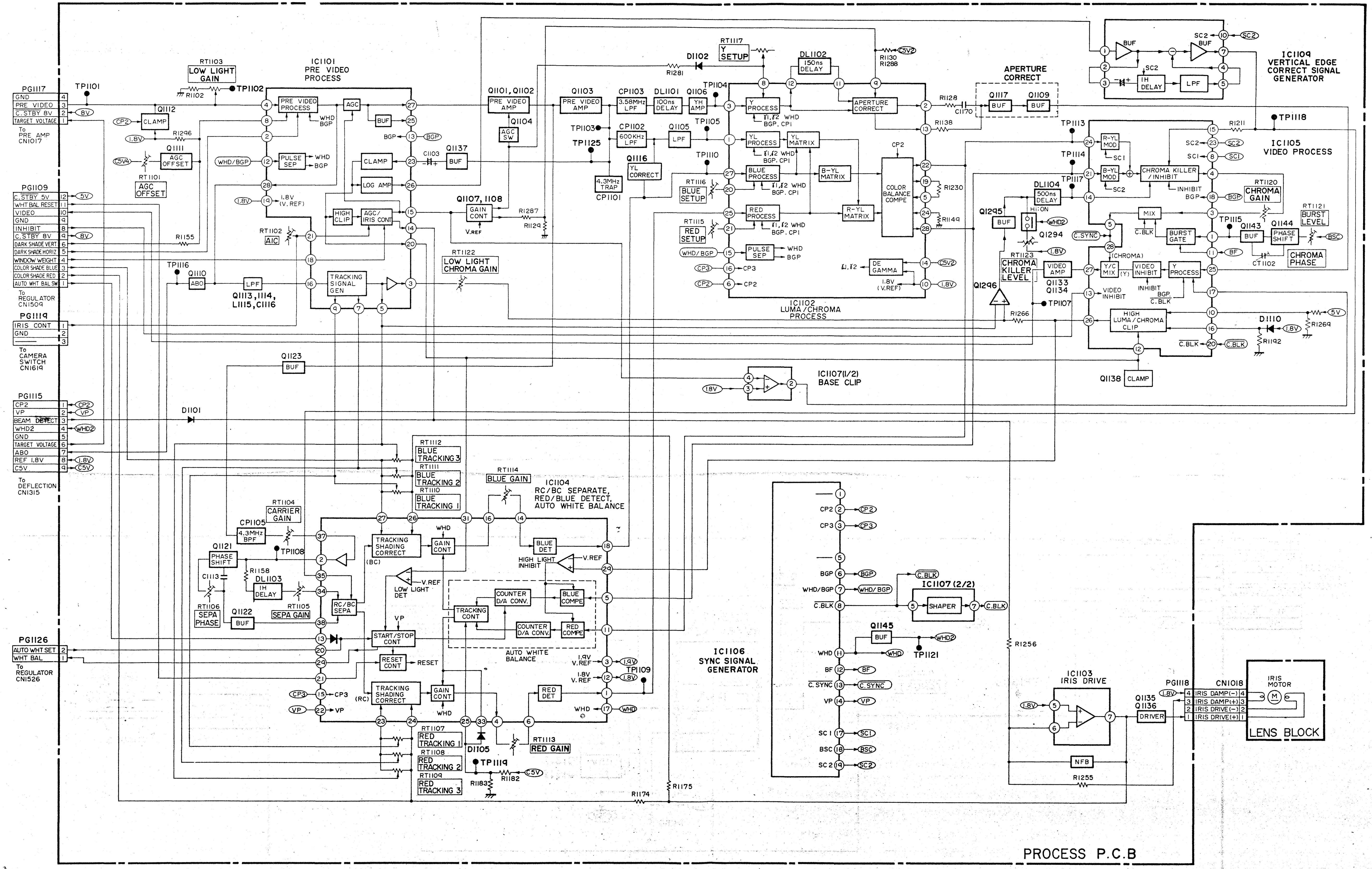
R1018
PICK-UP TUBE
C1011
Q1006,Q1005
Q1004,Q1002
PRE AMP
Q1001
AMP
NFB
CT1001
SMEAR
8V
CN1017
1 TARGET VOLTAGE
2 C.STBY 8V
3 PRE VIDEO
4 GND
To PROCESS (PRE PROCESS) PG1117
PRE AMP P.C.B

• CIRCUIT BOARD CONNECTION DIAGRAM (AUTO FOCUS)

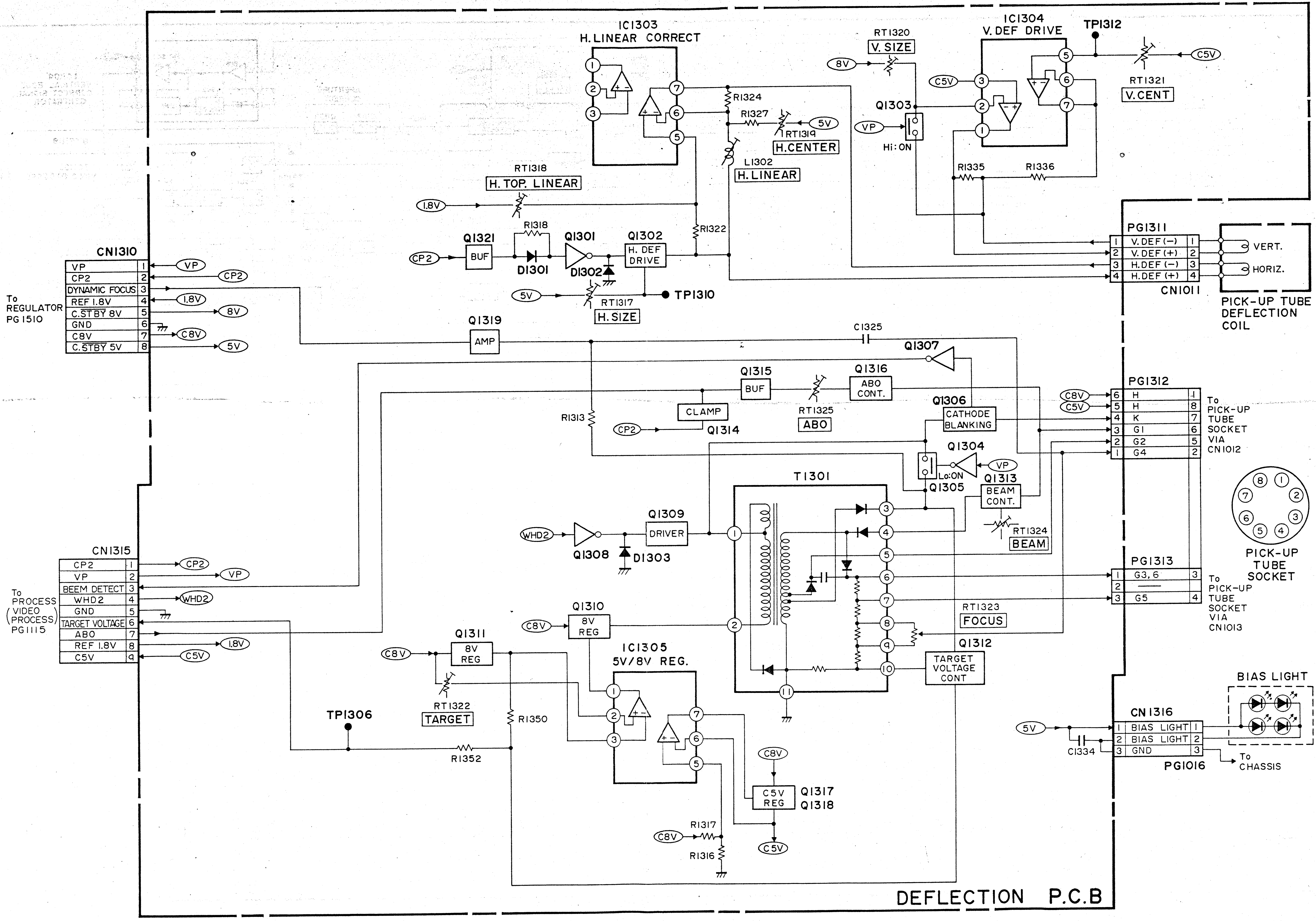


LED P.C.B
CN3
PG3
1 INFRARED 1
2 GND 2
FOCUS MOTOR
CN2
PG2
1 MOTOR DRIVE 1
2 MOTOR DRIVE 2
END SW
CN1
PG1
1 GND 1
2 END DET 2
COMPONENT SERIES 1
AUTO FOCUS P.C.B
CN5
1 STBY 12V 2
2 GND 3
3 C. STBY 8V 1
To REGULATOR PG1508
FOCUS SENSOR P.C.B
PG4
CN4
1 FOCUS AUTO 4
2 C. STBY 8V 3
2 AUTO WHT SET 2
1 AUTO WHT BAL 1
To REGULATOR PG1524
SWITCH P.C.B

• PROCESS BLOCK DIAGRAM

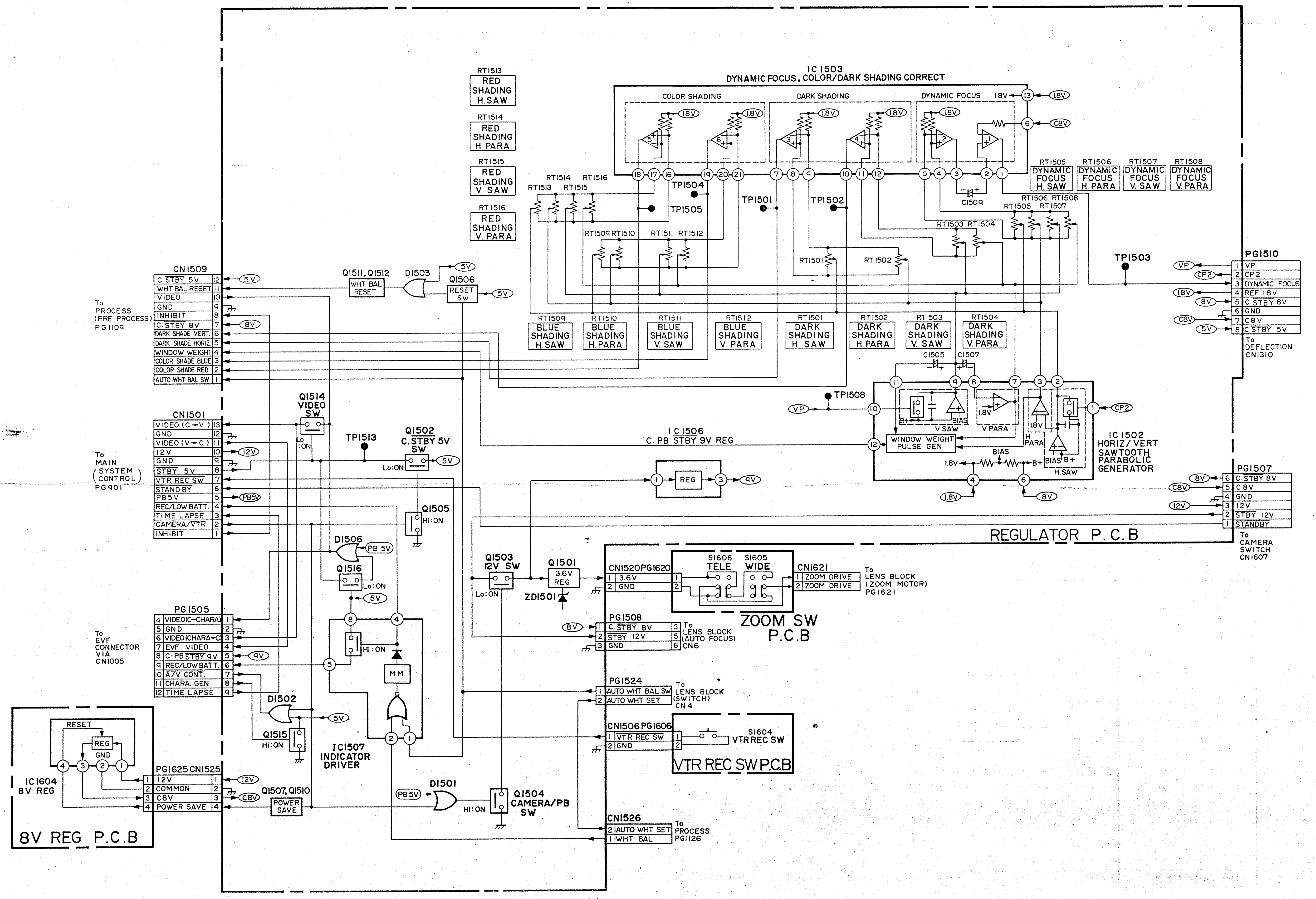

PG1117
GND
PRE VIDEO
C.STBY 8V
TARGET VOLTAGE
To PRE AMP CN1017
PG1109
C.STBY 5V
WHT BAL RESET
VIDEO
GND
INHIBIT
C.STBY 8V
DARK SHADE VERT
DARK SHADE HORIZ
WINDOW WEIGHT
COLOR SHADE BLUE
COLOR SHADE RED
AUTO WHT BAL SW
To REGULATOR CN1509
PG1119
IRIS CONT
GND
To CAMERA SWITCH CN1619
PG1115
CP2
VP
BEAM DETECT
WHD2
GND
TARGET VOLTAGE
ABO
REF 1.8V
C5V
To DEFLECTION CN1315
PG1126
AUTO WHT SET
WHT BAL
To REGULATOR CN1526
TP1101
RT1103 LOW LIGHT GAIN
R1102
TP1102
Q1112 CLAMP
R1296
Q1111 AGC OFFSET
RT1101 AGC OFFSET
IC1101 PRE VIDEO PROCESS
PRE VIDEO PROCESS
AGC
BUF
PULSE SEP
CLAMP
LOG AMP
HIGH CLIP
AGC/IRIS CONT
TRACKING SIGNAL GEN
RT1102 AIC
R1155
TP1116
Q1110 ABO
LPF
Q1113,1114, L1115,C1116
Q1137 BUF
C1103
Q1101, Q1102 PRE VIDEO AMP
Q1104 AGC SW
Q1107, 1108 GAIN CONT
V.REF
R1287
R1129
RT1122 LOW LIGHT CHROMA GAIN
Q1103 PRE VIDEO AMP
CP1103 3.58MHz LPF
DL1101 100ns DELAY
Q1106 YH AMP
TP1103
TP1125
CP1102 600KHz LPF
Q1105 LPF
Q1116 YL CORRECT
4.3MHz TRAP CP1101
D1102
R1281
RT1117 Y SETUP
TP1104
TP1105
TP1110
DL1102 150ns DELAY
R1130 R1288
Y PROCESS
YL PROCESS
YL MATRIX
BLUE PROCESS
B-YL MATRIX
RED PROCESS
R-YL MATRIX
RT1116 BLUE SETUP
RT1115 RED SETUP
PULSE SEP
COLOR BALANCE COMPE
DE GAMMA
APERTURE CORRECT
R1230
R1149
IC1102 LUMA/CHROMA PROCESS
APERTURE CORRECT
R1128
C1170
Q1117 BUF
Q1109 BUF
R1138
IC1109 VERTICAL EDGE CORRECT SIGNAL GENERATOR
BUF
1H DELAY
LPF
TP1118
TP1113
TP1114
TP1117
R-YL MOD
B-YL MOD
CHROMA KILLER /INHIBIT
R1211
IC1105 VIDEO PROCESS
RT1120 CHROMA GAIN
DL1104 500ns DELAY
Q1295 BUF
Q1294
RT1123 CHROMA KILLER LEVEL
Q1296
VIDEO AMP
Q1133 Q1134
TP1107
MIX
BURST GATE
Y/C MIX
VIDEO INHIBIT
Y PROCESS
TP1115
Q1143 BUF
Q1144 PHASE SHIFT
C1102
RT1121 BURST LEVEL
CHROMA PHASE
R1266
HIGH LUMA/CHROMA CLIP
D1110
R1269
R1192
Q1138 CLAMP
Q1123 BUF
IC1107(1/2) BASE CLIP
D1101
RT1112 BLUE TRACKING 3
RT1111 BLUE TRACKING 2
RT1110 BLUE TRACKING 1
RT1114 BLUE GAIN
IC1104 RC/BC SEPARATE, RED/BLUE DETECT, AUTO WHITE BALANCE
RT1104 CARRIER GAIN
CP1105 4.3MHz BPF
TP1108
Q1121 PHASE SHIFT
C1113
R1158
DL1103 1H DELAY
RT1106 SEPA PHASE
Q1122 BUF
RT1105 SEPA GAIN
TRACKING SHADING CORRECT (BC)
GAIN CONT
BLUE DET
HIGH LIGHT INHIBIT
LOW LIGHT DET
RC/BC SEPA
COUNTER D/A CONV.
TRACKING CONT
BLUE COMPE
RED COMPE
START/STOP CONT
RESET CONT
AUTO WHITE BALANCE
TRACKING SHADING CORRECT (RC)
RED DET
RT1107 RED TRACKING 1
RT1108 RED TRACKING 2
RT1109 RED TRACKING 3
D1105
TP1119
R1183
R1182
RT1113 RED GAIN
TP1109
R1174
R1175
IC1106 SYNC SIGNAL GENERATOR
CP2 CP3 BGP WHD/BGP C.BLK WHD BF C.SYNC VP SC1 BSC SC2
IC1107 (2/2) SHAPER
Q1145 BUF
TP1121
R1256
IC1103 IRIS DRIVE
Q1135 Q1136 DRIVER
NFB
R1255
PG1118
CN1018
IRIS DAMP(-)
IRIS DAMP(+)
IRIS DRIVE(-)
IRIS DRIVE(+)
IRIS MOTOR
LENS BLOCK
PROCESS P.C.B

• DEFLECTION BLOCK DIAGRAM

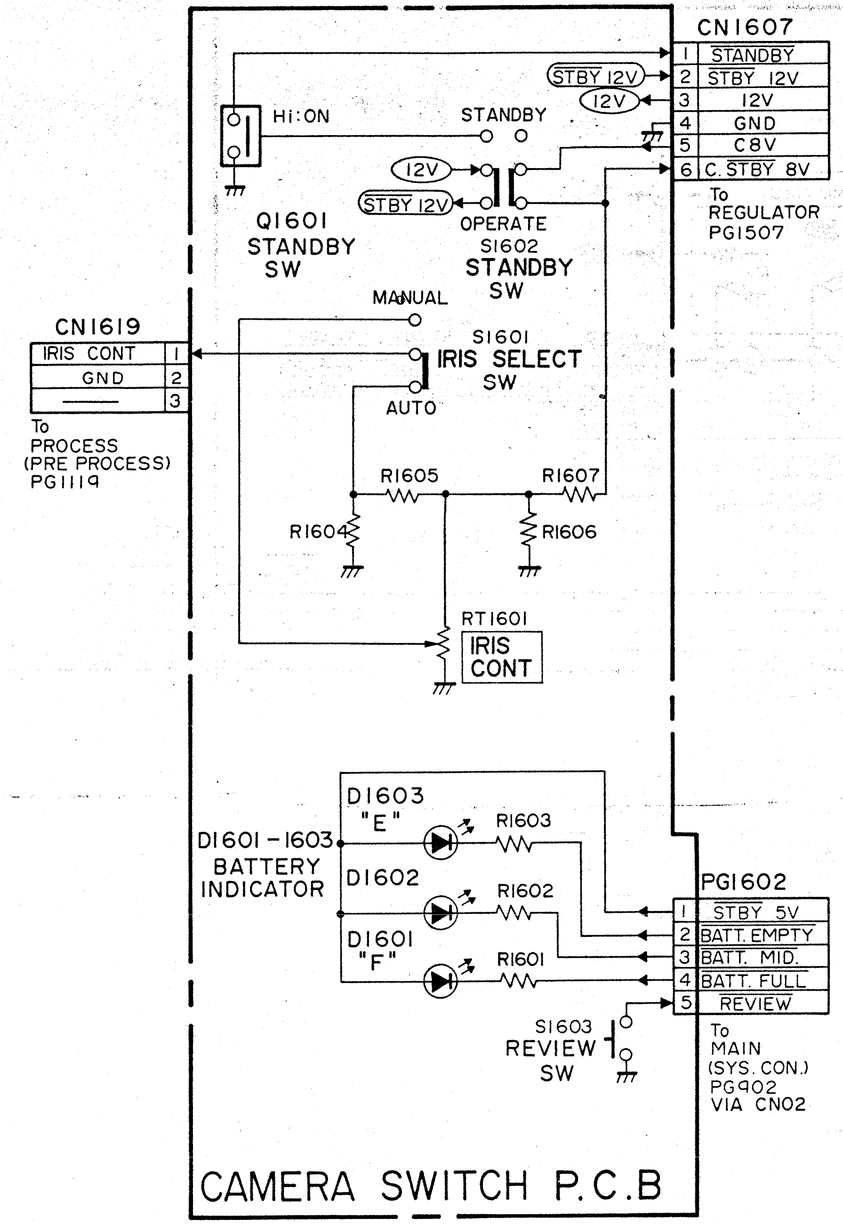


IC1303
H. LINEAR CORRECT
R1324
R1327
5V
RT1319
H.CENTER
L1302
H. LINEAR
RT1318
H. TOP. LINEAR
1.8V
R1318
Q1321
BUF
Q1301
Q1302
H. DEF DRIVE
D1301
D1302
R1322
CP2
5V
RT1317
H. SIZE
TP1310
RT1320
V. SIZE
8V
Q1303
VP
Hi : ON
IC1304
V. DEF DRIVE
TP1312
C5V
RT1321
V. CENT
R1335
R1336
PG1311
V. DEF (−)
V. DEF (+)
H. DEF (−)
H. DEF (+)
CN1011
VERT.
HORIZ.
PICK-UP TUBE DEFLECTION COIL
CN1310
VP
CP2
DYNAMIC FOCUS
REF 1.8V
C. STBY 8V
GND
C8V
C. STBY 5V
To REGULATOR PG1510
Q1319
AMP
C1325
Q1307
Q1315
BUF
Q1316
ABO CONT.
CLAMP
Q1314
RT1325
ABO
R1313
Q1306
CATHODE BLANKING
Q1304
Lo: ON
Q1305
Q1313
BEAM CONT.
RT1324
BEAM
PG1312
C8V
H
H
K
G1
G2
G4
To PICK-UP TUBE SOCKET VIA CN1012
PICK-UP TUBE SOCKET
T1301
WHD2
Q1308
Q1309
DRIVER
D1303
CN1315
CP2
VP
BEEM DETECT
WHD2
GND
TARGET VOLTAGE
ABO
REF 1.8V
C5V
To PROCESS (VIDEO PROCESS) PG1115
Q1310
8V REG
Q1311
8V REG
RT1322
TARGET
IC1305
5V/8V REG.
RT1323
FOCUS
Q1312
TARGET VOLTAGE CONT
PG1313
G3, 6
G5
To PICK-UP TUBE SOCKET VIA CN1013
TP1306
R1350
R1352
C5V REG
Q1317
Q1318
R1317
R1316
BIAS LIGHT
CN1316
BIAS LIGHT
BIAS LIGHT
GND
C1334
PG1016
To CHASSIS
DEFLECTION P.C.B

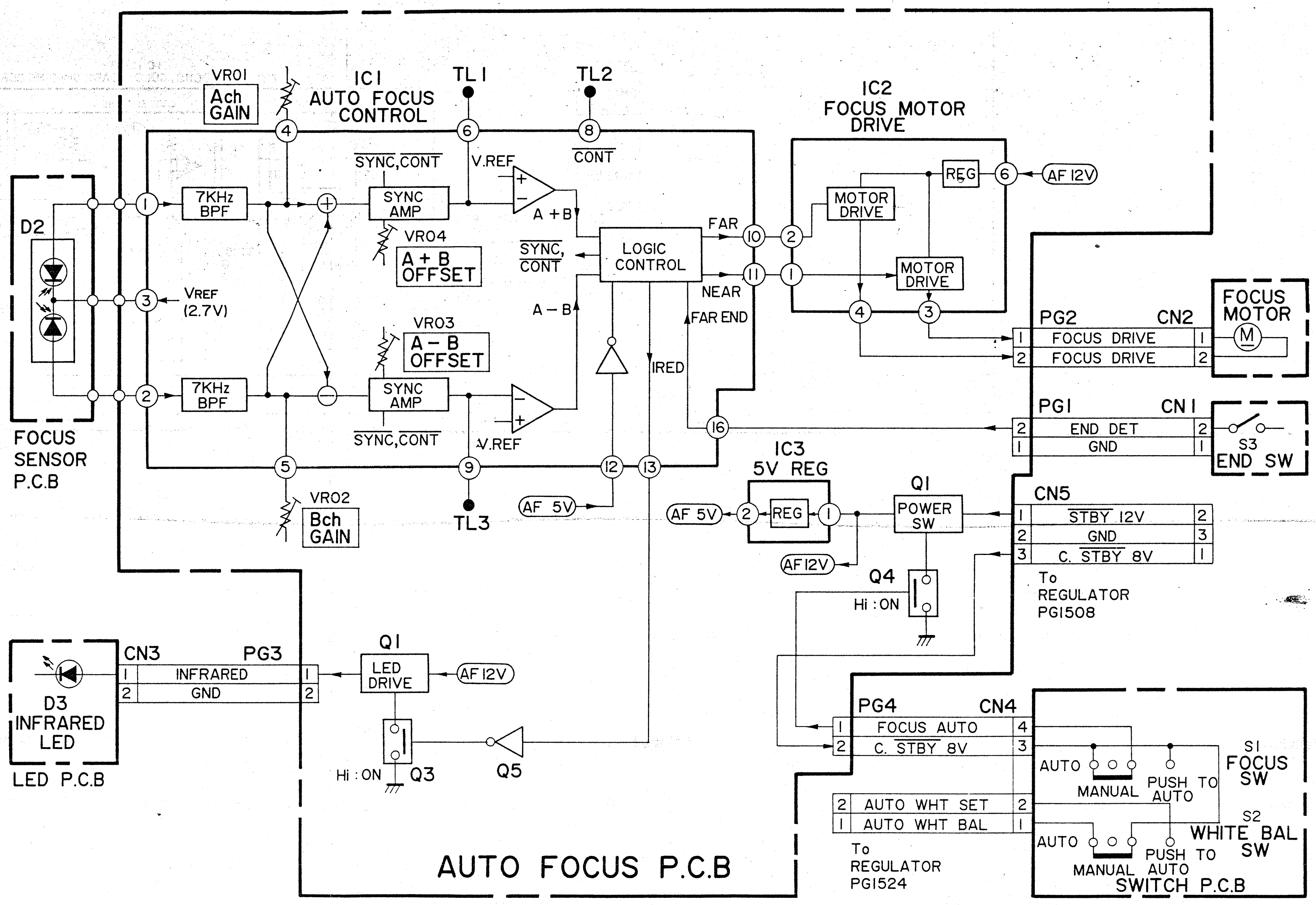
• REGULATOR. 8V REG. ZOOM SW. VTR REC SW BLOCK DIAGRAM


IC1503
DYNAMIC FOCUS, COLOR/DARK SHADING CORRECT
COLOR SHADING
DARK SHADING
DYNAMIC FOCUS
1.8V
C8V
RT1513 RED SHADING H.SAW
RT1514 RED SHADING H.PARA
RT1515 RED SHADING V.SAW
RT1516 RED SHADING V.PARA
RT1505 DYNAMIC FOCUS H.SAW
RT1506 DYNAMIC FOCUS H.PARA
RT1507 DYNAMIC FOCUS V.SAW
RT1508 DYNAMIC FOCUS V.PARA
TP1504
TP1505
TP1501
TP1502
TP1503
C1509
RT1509 BLUE SHADING H.SAW
RT1510 BLUE SHADING H.PARA
RT1511 BLUE SHADING V.SAW
RT1512 BLUE SHADING V.PARA
RT1501 DARK SHADING H.SAW
RT1502 DARK SHADING H.PARA
RT1503 DARK SHADING V.SAW
RT1504 DARK SHADING V.PARA
C1505
C1507
PG1510
1 VP
2 CP2
3 DYNAMIC FOCUS
4 REF 1.8V
5 C.STBY 8V
6 GND
7 C8V
8 C.STBY 5V
To DEFLECTION CN1310
CN1509
12 C.STBY 5V
11 WHT BAL RESET
10 VIDEO
9 GND
8 INHIBIT
7 C.STBY 8V
6 DARK SHADE VERT.
5 DARK SHADE HORIZ.
4 WINDOW WEIGHT
3 COLOR SHADE BLUE
2 COLOR SHADE RED
1 AUTO WHT BAL SW
To PROCESS (PRE PROCESS) PG1109
Q1511, Q1512 WHT BAL RESET
D1503
Q1506 RESET SW
5V
8V
TP1508
VP
CP2
IC1502 HORIZ/VERT SAWTOOTH PARABOLIC GENERATOR
WINDOW WEIGHT PULSE GEN
V.SAW
V.PARA
H.PARA
H.SAW
BIAS
B+
IC1506 C.PB STBY 9V REG
REG
9V
CN1501
13 VIDEO (C→V)
12 GND
11 VIDEO (V→C)
10 12V
9 GND
8 STBY 5V
7 VTR REC SW
6 STAND BY
5 PB5V
4 REC/LOW BATT.
3 TIME LAPSE
2 CAMERA/VTR
1 INHIBIT
To MAIN (SYSTEM CONTROL) PG901
Q1514 VIDEO SW
Lo:ON
TP1513
Q1502 C.STBY 5V SW
Lo:ON
Q1505 Hi:ON
D1506
PB 5V
Q1516 Lo:ON
PG1507
6 C.STBY 8V
5 C8V
4 GND
3 12V
2 STBY 12V
1 STANDBY
To CAMERA SWITCH CN1607
REGULATOR P.C.B
Q1503 12V SW
Lo:ON
Q1501 3.6V REG
ZD1501
CN1520 PG1620
1 3.6V
2 GND
S1606 TELE
S1605 WIDE
CN1621
1 ZOOM DRIVE
2 ZOOM DRIVE
To LENS BLOCK (ZOOM MOTOR) PG1621
ZOOM SW P.C.B
PG1508
1 C.STBY 8V
2 STBY 12V
3 GND
To LENS BLOCK (AUTO FOCUS) CN6
PG1505
1 4 VIDEO (C-CHARA)
2 5 GND
3 6 VIDEO (CHARA→C)
4 7 EVF VIDEO
5 8 C.PB STBY 9V
6 9 REC/LOW BATT.
7 10 A/V CONT.
8 11 CHARA. GEN
9 12 TIME LAPSE
To EVF CONNECTOR VIA CN1005
Hi:ON
MM
D1502
Q1515 Hi:ON
IC1507 INDICATOR DRIVER
PG1524
1 AUTO WHT BAL SW
2 AUTO WHT SET
To LENS BLOCK (SWITCH) CN4
CN1506 PG1606
1 VTR REC SW
2 GND
S1604 VTR REC SW
VTR REC SW P.C.B
RESET
REG
GND
IC1604 8V REG
PG1625 CN1525
1 12V
2 COMMON
3 C8V
4 POWER SAVE
Q1507, Q1510 POWER SAVE
D1501
PB5V
Q1504 CAMERA/PB SW
Hi:ON
CN1526
2 AUTO WHT SET
1 WHT BAL
To PROCESS PG1126
8V REG P.C.B

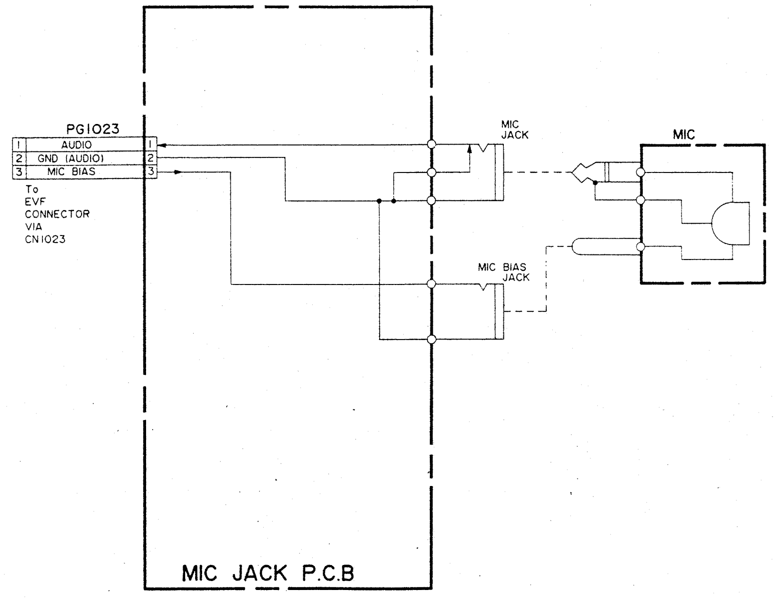
• CAMERA SW BLOCK DIAGRAM


CN1607
1 STANDBY
2 STBY 12V
3 12V
4 GND
5 C8V
6 C. STBY 8V
To REGULATOR PG1507
STBY 12V
12V
Hi : ON
STANDBY
OPERATE
S1602 STANDBY SW
Q1601 STANDBY SW
CN1619
IRIS CONT 1
GND 2
3
To PROCESS (PRE PROCESS) PG1119
MANUAL
S1601 IRIS SELECT SW
AUTO
R1605
R1607
R1604
R1606
RT1601
IRIS CONT
D1601 - 1603 BATTERY INDICATOR
D1603 "E"
R1603
D1602
R1602
D1601 "F"
R1601
PG1602
1 STBY 5V
2 BATT. EMPTY
3 BATT. MID.
4 BATT. FULL
5 REVIEW
S1603 REVIEW SW
To MAIN (SYS. CON.) PG902 VIA CN02
CAMERA SWITCH P.C.B

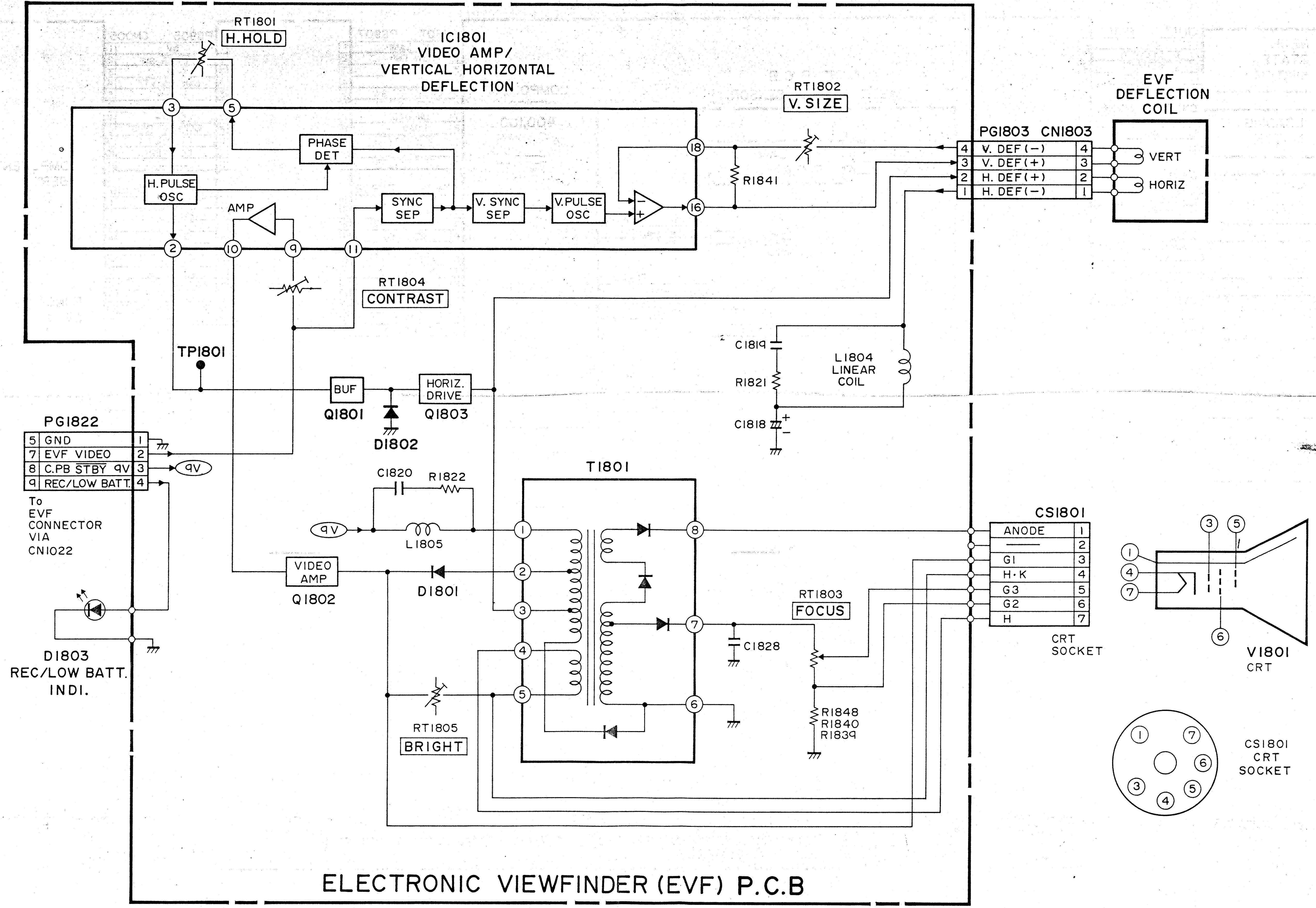
• AUTO FOCUS/SWITCH BLOCK DIAGRAM


D2
FOCUS SENSOR P.C.B
VR01 Ach GAIN
IC1 AUTO FOCUS CONTROL
TL1
TL2
TL3
7KHz BPF
7KHz BPF
VREF (2.7V)
SYNC,CONT
SYNC AMP
V.REF
A + B
VR04
A + B OFFSET
CONT
LOGIC CONTROL
SYNC, CONT
A − B
VR03
A − B OFFSET
SYNC AMP
SYNC,CONT
V.REF
FAR
NEAR
FAR END
IRED
VR02 Bch GAIN
AF 5V
IC2 FOCUS MOTOR DRIVE
MOTOR DRIVE
MOTOR DRIVE
REG
AF 12V
PG2
CN2
1 FOCUS DRIVE 1
2 FOCUS DRIVE 2
FOCUS MOTOR
M
PG1
CN1
2 END DET 2
1 GND 1
S3 END SW
IC3 5V REG
REG
AF 5V
AF 12V
Q1 POWER SW
Q4
Hi : ON
CN5
1 STBY 12V 2
2 GND 3
3 C. STBY 8V 1
To REGULATOR PG1508
D3 INFRARED LED
LED P.C.B
CN3
PG3
1 INFRARED 1
2 GND 2
Q1 LED DRIVE
AF 12V
Hi : ON
Q3
Q5
PG4
CN4
1 FOCUS AUTO 4
2 C. STBY 8V 3
2 AUTO WHT SET 2
1 AUTO WHT BAL 1
To REGULATOR PG1524
AUTO
MANUAL
PUSH TO AUTO
S1 FOCUS SW
S2 WHITE BAL SW
SWITCH P.C.B
AUTO FOCUS P.C.B

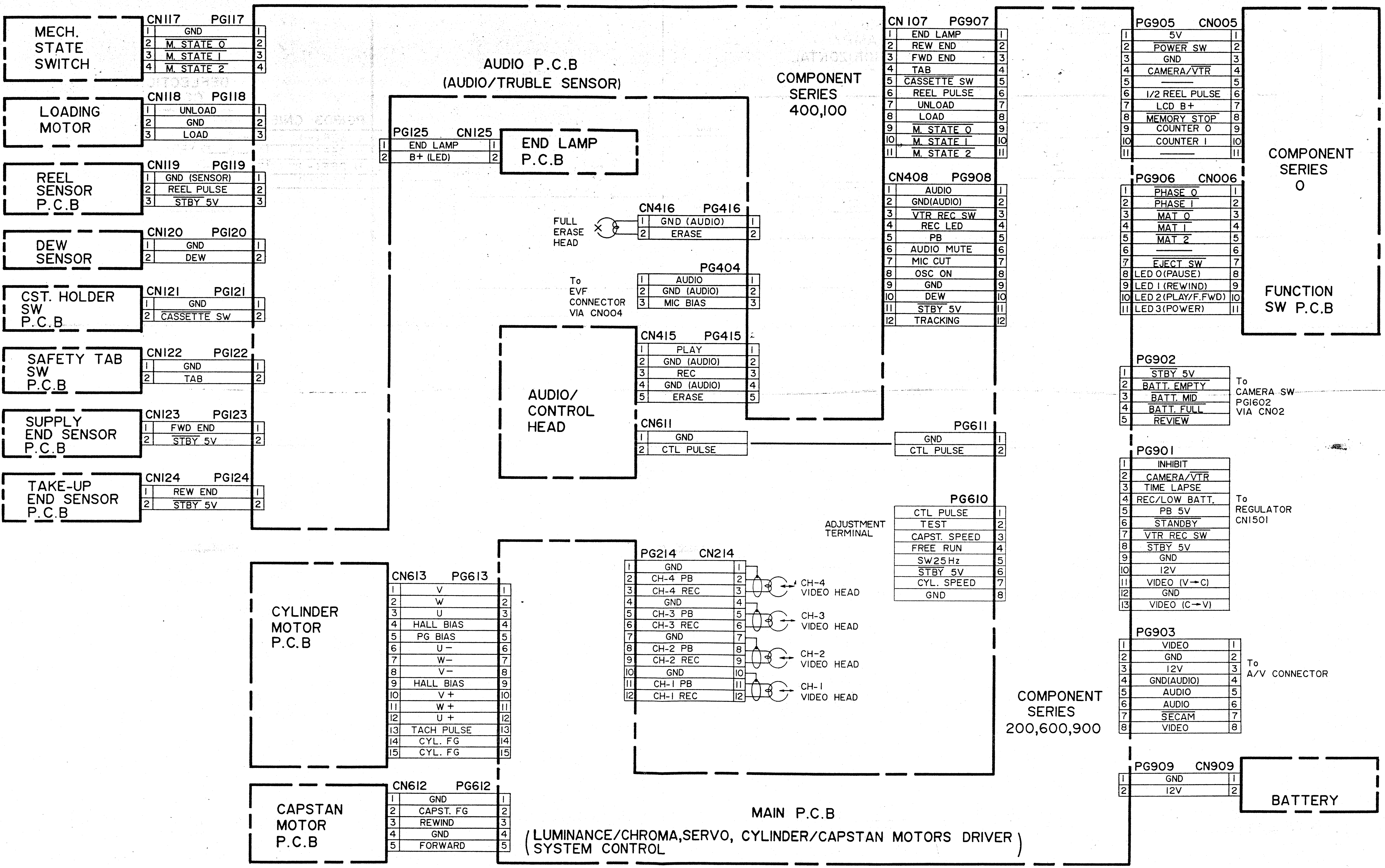
• MIC JACK BLOCK DIAGRAM


PG1023
1 AUDIO 1
2 GND (AUDIO) 2
3 MIC BIAS 3
To EVF CONNECTOR VIA CN1023
MIC JACK
MIC BIAS JACK
MIC
MIC JACK P.C.B

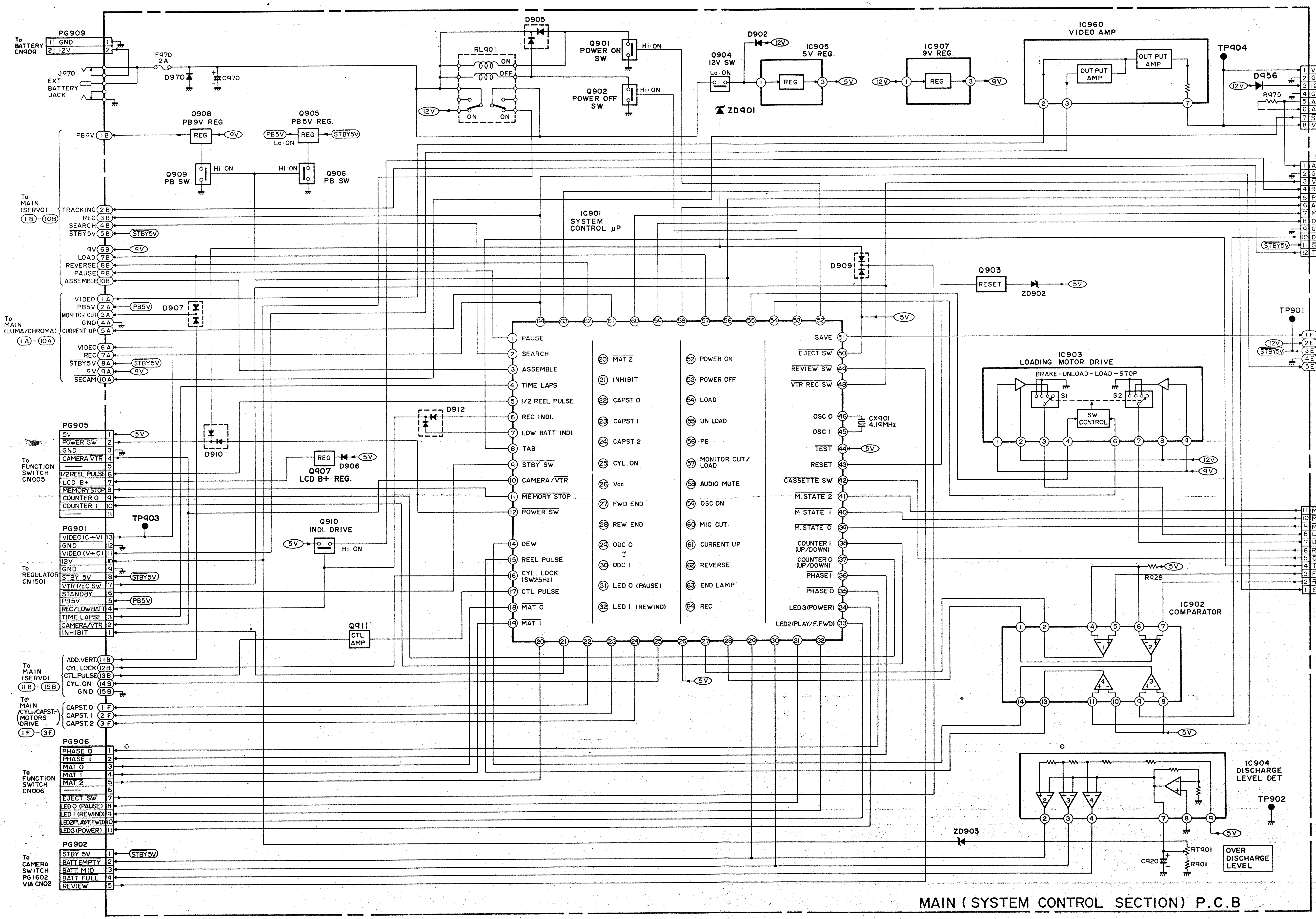
• ELECTRONIC VIEWFINDER (EVF) BLOCK DIAGRAM


RT1801
H.HOLD
IC1801
VIDEO AMP/
VERTICAL HORIZONTAL
DEFLECTION
PHASE DET
H.PULSE OSC
AMP
SYNC SEP
V. SYNC SEP
V.PULSE OSC
RT1802
V. SIZE
R1841
EVF DEFLECTION COIL
PG1803 CN1803
4 V. DEF (−) 4
3 V. DEF (+) 3
2 H. DEF (+) 2
1 H. DEF (−) 1
VERT
HORIZ
RT1804
CONTRAST
TP1801
BUF
Q1801
D1802
HORIZ. DRIVE
Q1803
C1819
R1821
C1818
L1804
LINEAR
COIL
PG1822
5 GND 1
7 EVF VIDEO 2
8 C.PB STBY 9V 3
9 REC/LOW BATT. 4
9V
To
EVF
CONNECTOR
VIA
CN1022
C1820
R1822
L1805
T1801
VIDEO AMP
Q1802
D1801
D1803
REC/LOW BATT.
INDI.
RT1805
BRIGHT
RT1803
FOCUS
C1828
R1848
R1840
R1839
CS1801
ANODE 1
2
G1 3
H·K 4
G3 5
G2 6
H 7
CRT
SOCKET
V1801
CRT
CS1801
CRT
SOCKET
ELECTRONIC VIEWFINDER (EVF) P.C.B

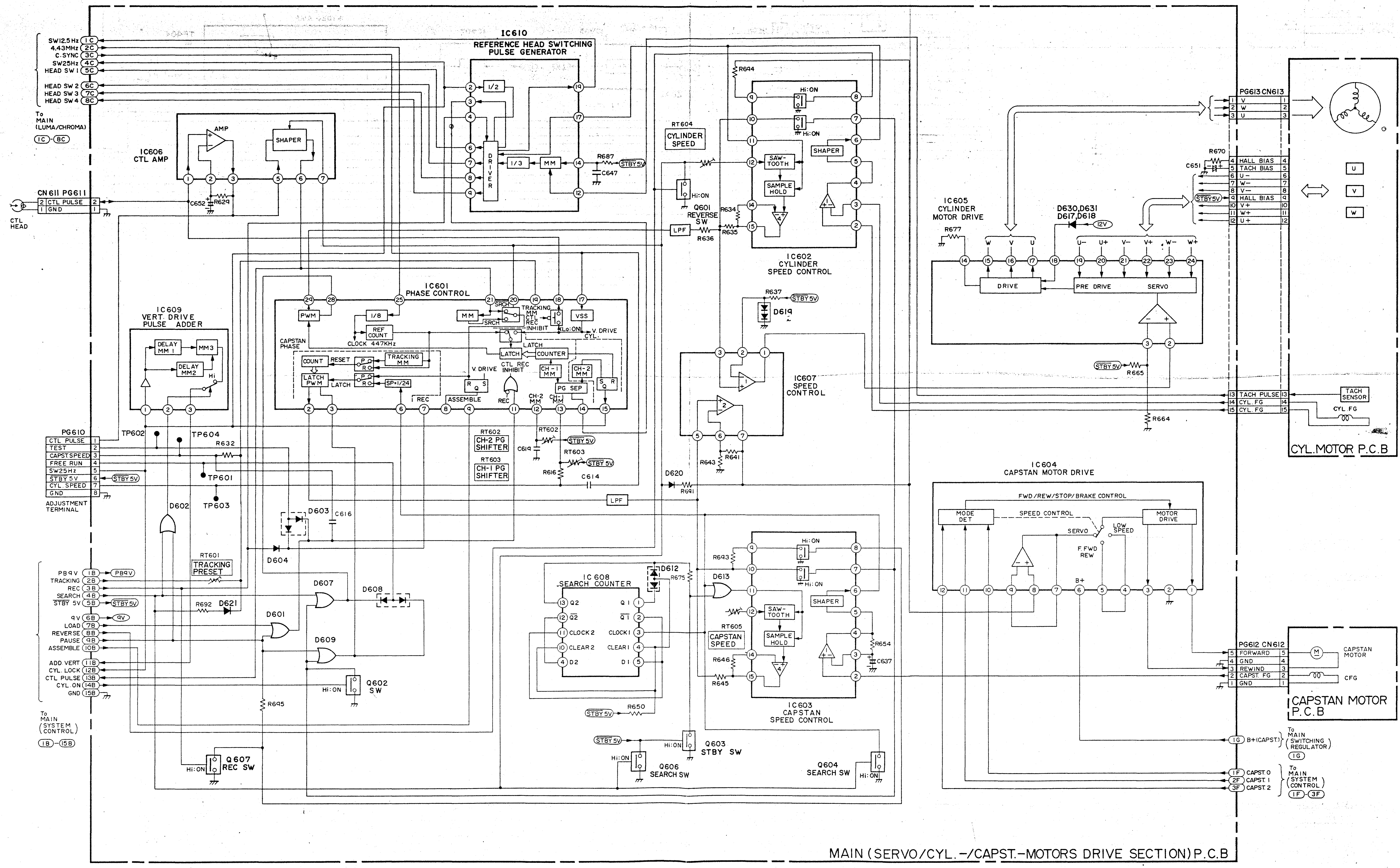
• CIRCUIT BOARD CONNECTION DIAGRAM (VTR)


MECH. STATE SWITCH
CN117 PG117
1 GND
2 M. STATE 0
3 M. STATE 1
4 M. STATE 2
LOADING MOTOR
CN118 PG118
1 UNLOAD
2 GND
3 LOAD
REEL SENSOR P.C.B
CN119 PG119
1 GND (SENSOR)
2 REEL PULSE
3 STBY 5V
DEW SENSOR
CN120 PG120
1 GND
2 DEW
CST. HOLDER SW P.C.B
CN121 PG121
1 GND
2 CASSETTE SW
SAFETY TAB SW P.C.B
CN122 PG122
1 GND
2 TAB
SUPPLY END SENSOR P.C.B
CN123 PG123
1 FWD END
2 STBY 5V
TAKE-UP END SENSOR P.C.B
CN124 PG124
1 REW END
2 STBY 5V
AUDIO P.C.B (AUDIO/TRUBLE SENSOR)
PG125 CN125
1 END LAMP
2 B+ (LED)
END LAMP P.C.B
FULL ERASE HEAD
CN416 PG416
1 GND (AUDIO)
2 ERASE
To EVF CONNECTOR VIA CN004
PG404
1 AUDIO
2 GND (AUDIO)
3 MIC BIAS
AUDIO/ CONTROL HEAD
CN415 PG415
1 PLAY
2 GND (AUDIO)
3 REC
4 GND (AUDIO)
5 ERASE
CN611
1 GND
2 CTL PULSE
COMPONENT SERIES 400,100
CN107 PG907
1 END LAMP
2 REW END
3 FWD END
4 TAB
5 CASSETTE SW
6 REEL PULSE
7 UNLOAD
8 LOAD
9 M. STATE 0
10 M. STATE 1
11 M. STATE 2
CN408 PG908
1 AUDIO
2 GND(AUDIO)
3 VTR REC SW
4 REC LED
5 PB
6 AUDIO MUTE
7 MIC CUT
8 OSC ON
9 GND
10 DEW
11 STBY 5V
12 TRACKING
PG611
1 GND
2 CTL PULSE
ADJUSTMENT TERMINAL
PG610
1 CTL PULSE
2 TEST
3 CAPST. SPEED
4 FREE RUN
5 SW25Hz
6 STBY 5V
7 CYL. SPEED
8 GND
CYLINDER MOTOR P.C.B
CN613 PG613
1 V
2 W
3 U
4 HALL BIAS
5 PG BIAS
6 U−
7 W−
8 V−
9 HALL BIAS
10 V+
11 W+
12 U+
13 TACH PULSE
14 CYL. FG
15 CYL. FG
CAPSTAN MOTOR P.C.B
CN612 PG612
1 GND
2 CAPST. FG
3 REWIND
4 GND
5 FORWARD
PG214 CN214
1 GND
2 CH-4 PB
3 CH-4 REC
4 GND
5 CH-3 PB
6 CH-3 REC
7 GND
8 CH-2 PB
9 CH-2 REC
10 GND
11 CH-1 PB
12 CH-1 REC
CH-4 VIDEO HEAD
CH-3 VIDEO HEAD
CH-2 VIDEO HEAD
CH-1 VIDEO HEAD
MAIN P.C.B
(LUMINANCE/CHROMA, SERVO, CYLINDER/CAPSTAN MOTORS DRIVER SYSTEM CONTROL)
COMPONENT SERIES 200,600,900
PG905 CN005
1 5V
2 POWER SW
3 GND
4 CAMERA/VTR
5 ———
6 1/2 REEL PULSE
7 LCD B+
8 MEMORY STOP
9 COUNTER 0
10 COUNTER 1
11 ———
PG906 CN006
1 PHASE 0
2 PHASE 1
3 MAT 0
4 MAT 1
5 MAT 2
6
7 EJECT SW
8 LED 0 (PAUSE)
9 LED 1 (REWIND)
10 LED 2 (PLAY/F.FWD)
11 LED 3 (POWER)
COMPONENT SERIES 0
FUNCTION SW P.C.B
PG902
1 STBY 5V
2 BATT. EMPTY
3 BATT. MID
4 BATT. FULL
5 REVIEW
To CAMERA SW PG1602 VIA CN02
PG901
1 INHIBIT
2 CAMERA/VTR
3 TIME LAPSE
4 REC/LOW BATT.
5 PB 5V
6 STANDBY
7 VTR REC SW
8 STBY 5V
9 GND
10 12V
11 VIDEO (V→C)
12 GND
13 VIDEO (C→V)
To REGULATOR CN1501
PG903
1 VIDEO
2 GND
3 12V
4 GND(AUDIO)
5 AUDIO
6 AUDIO
7 SECAM
8 VIDEO
To A/V CONNECTOR
PG909 CN909
1 GND
2 12V
BATTERY

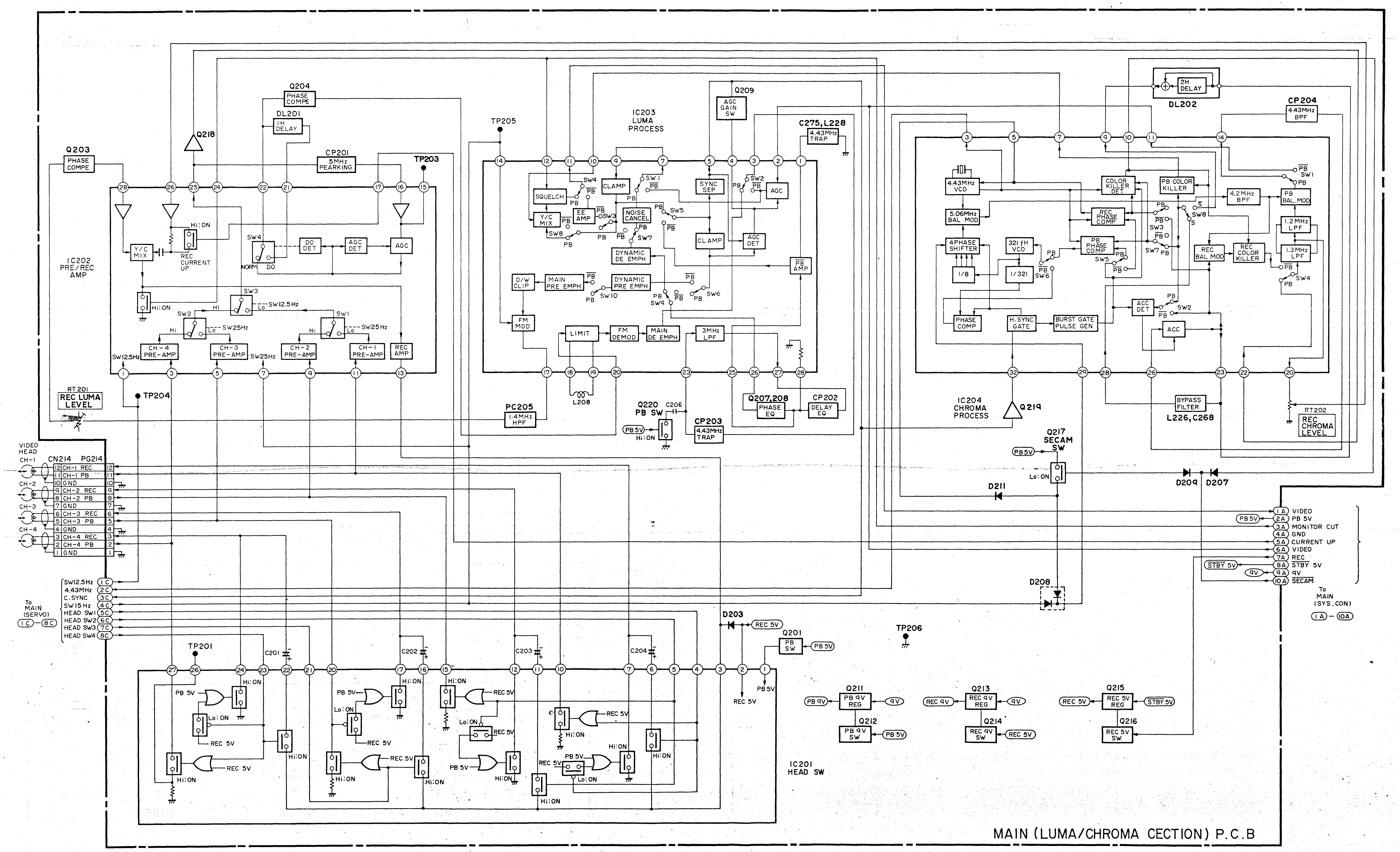
• SYSTEM CONTROL BLOCK DIAGRAM


PG909
To BATTERY CN909
GND
12V
F970 2A
J970 EXT BATTERY JACK
D970
C970
RL901
ON
OFF
D905
Q901 POWER ON SW
Hi: ON
Q902 POWER OFF SW
Hi: ON
12V
D902
Q904 12V SW
Lo: ON
ZD901
IC905 5V REG.
REG
5V
IC907 9V REG.
9V
IC960 VIDEO AMP
OUT PUT AMP
TP904
D956
R975
PG903
VIDEO
GND
12V
GND(AUDIO)
AUDIO
AUDIO
SECAM
VIDEO
To A/V CONNECTOR
Q908 PB9V REG.
Q905 PB5V REG.
PB5V Lo: ON
STBY5V
Q909 PB SW
Q906 PB SW
Hi: ON
PB9V 1B
To MAIN (SERVO) 1B - 10B
TRACKING 2B
REC 3B
SEARCH 4B
STBY5V 5B
9V 6B
LOAD 7B
REVERSE 8B
PAUSE 9B
ASSEMBLE 10B
IC901 SYSTEM CONTROL μP
PG908
AUDIO
GND(AUDIO)
VTR REC SW
REC LED
PB
AUDIO MUTE
MIC CUT
OSC ON
GND
DEW
STBY 5V
TRACKING
To AUDIO (AUDIO) CN408
D909
Q903 RESET
ZD902
To MAIN (LUMA/CHROMA) 1A - 10A
VIDEO 1A
PB5V 2A
MONITOR CUT 3A
GND 4A
CURRENT UP 5A
VIDEO 6A
REC 7A
STBY5V 8A
9V 9A
SECAM 10A
D907
D912
D910
1 PAUSE
2 SEARCH
3 ASSEMBLE
4 TIME LAPS
5 1/2 REEL PULSE
6 REC INDI.
7 LOW BATT INDI.
8 TAB
9 STBY SW
10 CAMERA/VTR
11 MEMORY STOP
12 POWER SW
14 DEW
15 REEL PULSE
16 CYL. LOCK (SW25Hz)
17 CTL PULSE
18 MAT 0
19 MAT 1
20 MAT 2
21 INHIBIT
22 CAPST 0
23 CAPST 1
24 CAPST 2
25 CYL. ON
26 Vcc
27 FWD END
28 REW END
29 ODC 0
30 ODC 1
31 LED 0 (PAUSE)
32 LED 1 (REWIND)
52 POWER ON
53 POWER OFF
54 LOAD
55 UN LOAD
56 PB
57 MONITOR CUT/LOAD
58 AUDIO MUTE
59 OSC ON
60 MIC CUT
61 CURRENT UP
62 REVERSE
63 END LAMP
64 REC
SAVE 51
EJECT SW 50
REVIEW SW 49
VTR REC SW 48
OSC 0 46
OSC 1 45
TEST 44
RESET 43
CASSETTE SW 42
M.STATE 2 41
M.STATE 1 40
M.STATE 0 39
COUNTER 1 (UP/DOWN) 38
COUNTER 0 (UP/DOWN) 37
PHASE 1 36
PHASE 0 35
LED3(POWER) 34
LED2(PLAY/F.FWD) 33
CX901 4.19MHz
TP901
SAVE 1E
12V 2E
STBY 5V 3E
GND 4E
REC 5E
To MAIN (SWITCHING REGULATOR) 1E - 5E
IC903 LOADING MOTOR DRIVE
BRAKE-UNLOAD-LOAD-STOP
S1
S2
SW CONTROL
PG905
5V
POWER SW
GND
CAMERA VTR
1/2 REEL PULSE
LCD B+
MEMORY STOP
COUNTER 0
COUNTER 1
To FUNCTION SWITCH CN005
REG
D906
Q907 LCD B+ REG.
TP903
PG901
VIDEO(C→V)
GND
VIDEO(V→C)
12V
GND
STBY 5V
VTR REC SW
STANDBY
PB5V
REC/LOW BATT
TIME LAPSE
CAMERA/VTR
INHIBIT
To REGULATOR CN1501
Q910 INDI. DRIVE
Hi: ON
Q911 CTL AMP
PG907
M.STATE 2
M.STATE 1
M.STATE 0
LOAD
UNLOAD
REEL PULSE
CASSETTE SW
TAB
FWD END
REW END
END LAMP
To AUDIO (TROUBLE SENSOR) CN107
R928
IC902 COMPARATOR
To MAIN (SERVO) 11B - 15B
ADD.VERT. 11B
CYL. LOCK 12B
CTL PULSE 13B
CYL. ON 14B
GND 15B
To MAIN (CYL./CAPST. MOTORS DRIVE) 1F - 3F
CAPST 0 1F
CAPST 1 2F
CAPST 2 3F
PG906
PHASE 0
PHASE 1
MAT 0
MAT 1
MAT 2
EJECT SW
LED 0 (PAUSE)
LED 1 (REWIND)
LED2(PLAY/F.FWD)
LED3(POWER)
To FUNCTION SWITCH CN006
IC904 DISCHARGE LEVEL DET
TP902
ZD903
RT901
R901
C920
OVER DISCHARGE LEVEL
PG902
STBY 5V
BATT EMPTY
BATT MID
BATT FULL
REVIEW
To CAMERA SWITCH PG1602 VIA CN02
MAIN (SYSTEM CONTROL SECTION) P.C.B

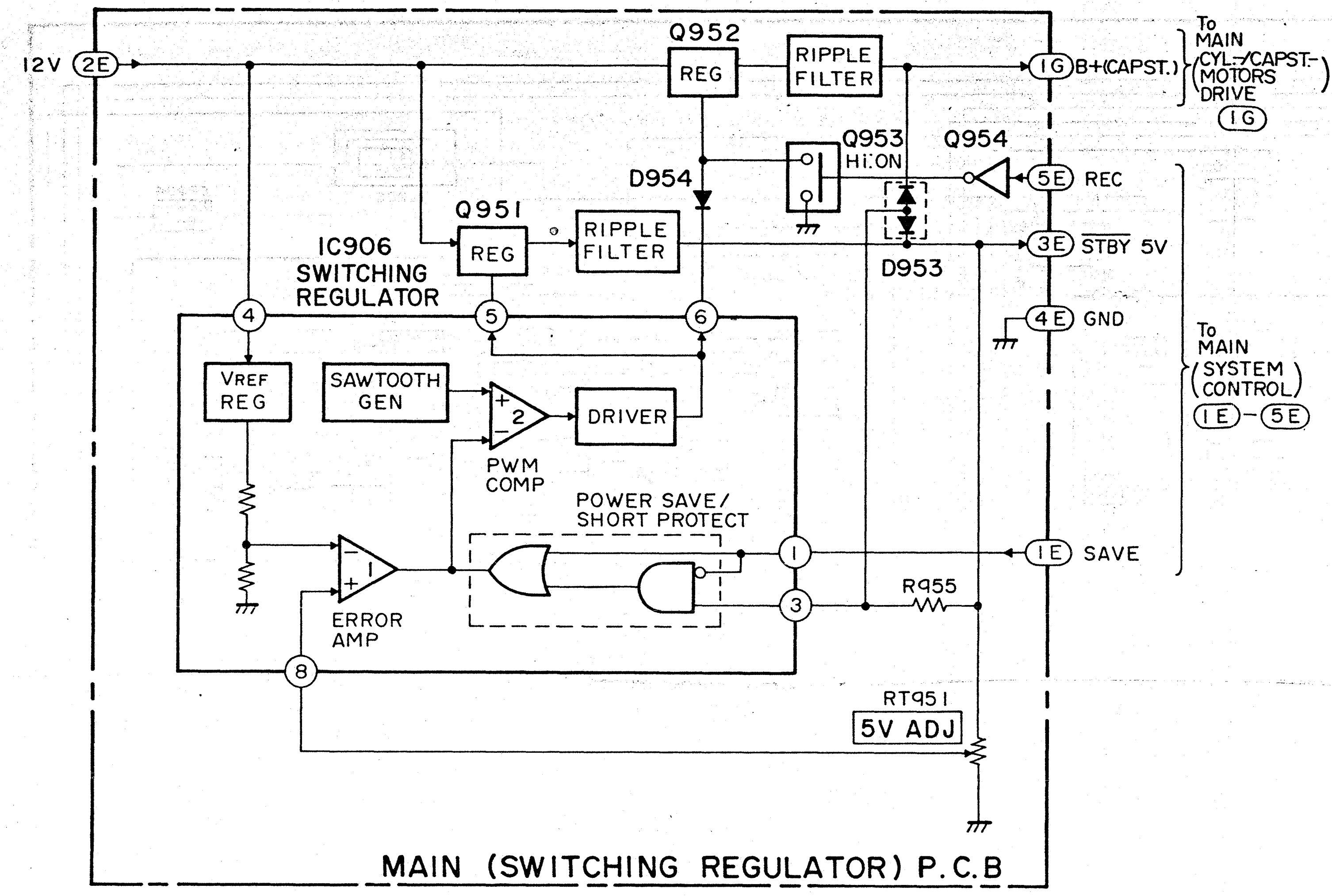
• SERVO. CYL.– /CAPST. – MOTORS DRIVE BLOCK DIAGRAM


IC610
REFERENCE HEAD SWITCHING PULSE GENERATOR
SW12.5Hz 1C
4.43MHz 2C
C.SYNC 3C
SW25Hz 4C
HEAD SW 1 5C
HEAD SW 2 6C
HEAD SW 3 7C
HEAD SW 4 8C
To MAIN (LUMA/CHROMA) (1C)-(8C)
1/2
1/3
MM
DRIVER
R687
STBY5V
C647
IC606
CTL AMP
AMP
SHAPER
C652
R629
CN611 PG611
CTL PULSE
GND
CTL HEAD
RT604
CYLINDER SPEED
R644
Hi:ON
SAW-TOOTH
SAMPLE HOLD
SHAPER
Q601 REVERSE SW
R634
R635
R636
LPF
IC602
CYLINDER SPEED CONTROL
IC601
PHASE CONTROL
PWM
1/8
REF COUNT
CLOCK 447KHz
CAPSTAN PHASE
MM
SRCH
TRACKING MM
CTL REC INHIBIT
Lo:ON
VSS
V. DRIVE CYL.
LATCH
COUNTER
COUNT
RESET
TRACKING MM
LATCH PWM
SP×1/24
V. DRIVE
CTL REC INHIBIT
CH-1 MM
CH-2 MM
PG SEP
REC
ASSEMBLE
CH-2 MM
CH-1 MM
IC609
VERT. DRIVE PULSE ADDER
DELAY MM 1
MM3
DELAY MM2
Hi
PG610
CTL PULSE 1
TEST 2
CAPST SPEED 3
FREE RUN 4
SW25Hz 5
STBY 5V 6
CYL. SPEED 7
GND 8
ADJUSTMENT TERMINAL
TP602
TP604
R632
TP601
TP603
RT602
CH-2 PG SHIFTER
RT603
CH-1 PG SHIFTER
C619
R616
C614
D602
D603
C616
D604
RT601
TRACKING PRESET
D607
D608
R692
D621
D601
D609
Q602 SW
Hi:ON
R695
Q607 REC SW
PB9V 1B
TRACKING 2B
REC 3B
SEARCH 4B
STBY 5V 5B
9V 6B
LOAD 7B
REVERSE 8B
PAUSE 9B
ASSEMBLE 10B
ADD VERT 11B
CYL. LOCK 12B
CTL PULSE 13B
CYL. ON 14B
GND 15B
To MAIN (SYSTEM CONTROL) (1B)-(15B)
R637
D619
IC607
SPEED CONTROL
R643
R641
D620
R691
LPF
IC608
SEARCH COUNTER
Q2
Q2
CLOCK 2
CLEAR 2
D2
Q1
Q1
CLOCK1
CLEAR1
D1
D612
R675
D613
R643
RT605
CAPSTAN SPEED
R646
R645
R654
C637
IC603
CAPSTAN SPEED CONTROL
R650
Q603 STBY SW
Q606 SEARCH SW
Q604 SEARCH SW
IC605
CYLINDER MOTOR DRIVE
R677
D630,D631
D617,D618
12V
DRIVE
PRE DRIVE
SERVO
R665
R664
PG613 CN613
V
W
U
R670
C651
HALL BIAS
TACH BIAS
U–
W–
V–
HALL BIAS
V+
W+
U+
TACH PULSE
CYL. FG
CYL. FG
TACH SENSOR
CYL FG
CYL.MOTOR P.C.B
IC604
CAPSTAN MOTOR DRIVE
FWD/REW/STOP/BRAKE CONTROL
MODE DET
SPEED CONTROL
MOTOR DRIVE
SERVO
LOW SPEED
F.FWD REW
B+
PG612 CN612
FORWARD
GND
REWIND
CAPST. FG
GND
CAPSTAN MOTOR
CFG
CAPSTAN MOTOR P.C.B
1G B+(CAPST.)
To MAIN (SWITCHING REGULATOR) (1G)
1F CAPST. 0
2F CAPST. 1
3F CAPST. 2
To MAIN (SYSTEM CONTROL) (1F)-(3F)
MAIN (SERVO/CYL.-/CAPST.-MOTORS DRIVE SECTION) P.C.B

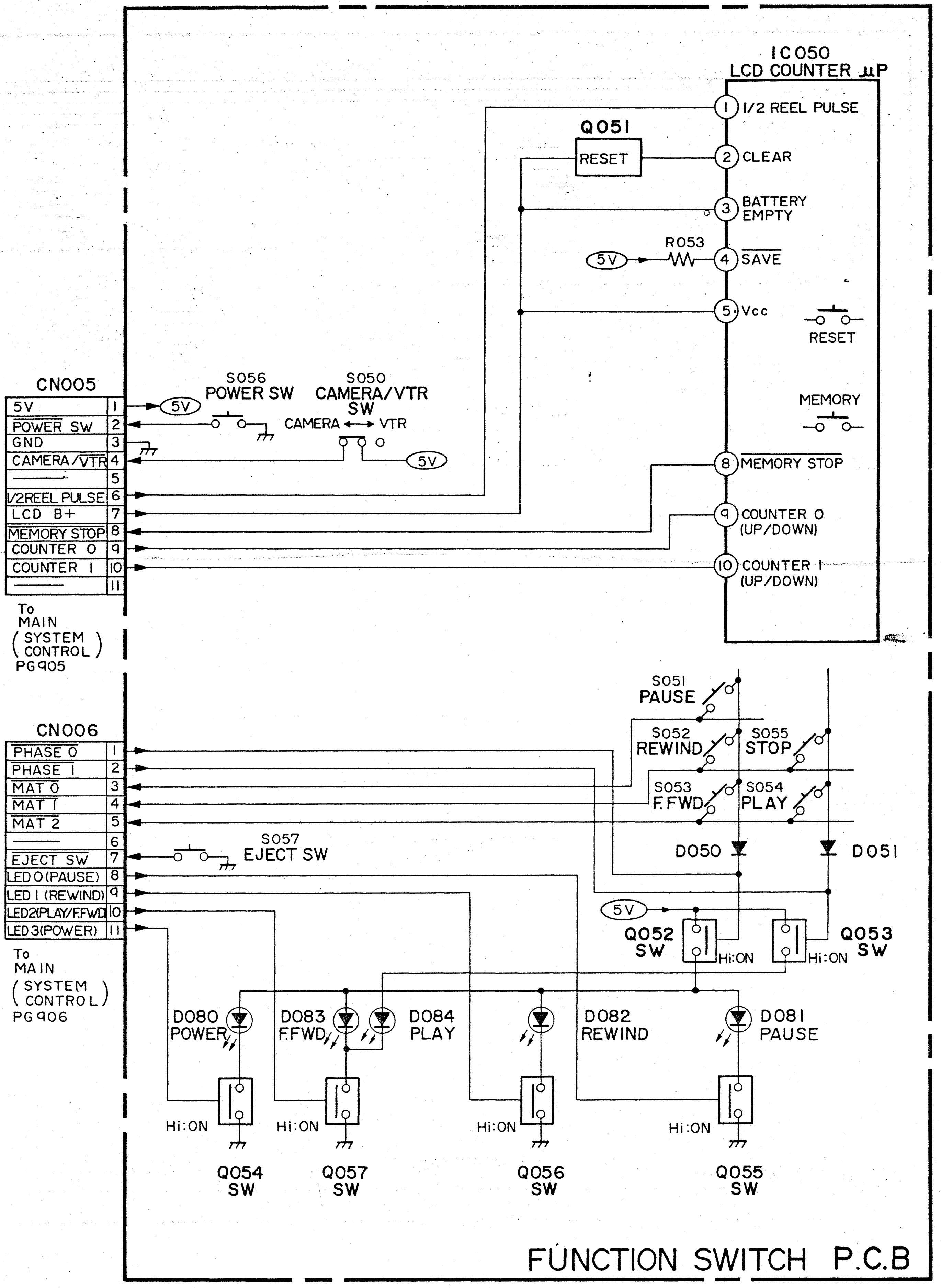
• LUMA/CHROMA BLOCK DIAGRAM


Q204
PHASE COMPE
DL201
1H DELAY
Q218
Q203
PHASE COMPE
CP201
5MHz PEARKING
TP203
TP205
IC203
LUMA PROCESS
Q209
AGC GAIN SW
C275,L228
4.43MHz TRAP
DL202
2H DELAY
CP204
4.43MHz BPF
IC202
PRE/REC AMP
Y/C MIX
Hi:ON
REC CURRENT UP
SW4
NORM
DO
DO DET
AGC DET
AGC
SW3
SW12.5Hz
Lo
Hi
SW2
SW25Hz
SW1
CH-4 PRE-AMP
CH-3 PRE-AMP
CH-2 PRE-AMP
CH-1 PRE-AMP
REC AMP
SW12.5Hz
SW25Hz
RT201
REC LUMA LEVEL
TP204
SQUELCH
Y/C MIX
SW8
EE AMP
SW3
CLAMP
SW1
NOISE CANCEL
SW5
SW7
SYNC SEP
SW2
AGC
CLAMP
AGC DET
DYNAMIC DE EMPH
DYNAMIC PRE EMPH
D/W CLIP
MAIN PRE EMPH
SW10
SW9
SW6
PB AMP
FM MOD
LIMIT
FM DEMOD
MAIN DE EMPH
3MHz LPF
L208
PC205
1.4MHz HPF
Q220
PB SW
C206
PB 5V
Hi:ON
CP203
4.43MHz TRAP
Q207,208
PHASE EQ
CP202
DELAY EQ
4.43MHz VCO
5.06MHz BAL MOD
4PHASE SHIFTER
1/8
321 fH VCO
1/321
COLOR KILLER DET
PB COLOR KILLER
REC PHASE COMP
PB PHASE COMP
4.2MHz BPF
PB BAL. MOD
1.2MHz LPF
1.3MHz LPF
REC BAL MOD
REC COLOR KILLER
ACC DET
ACC
PHASE COMP
H. SYNC GATE
BURST GATE PULSE GEN
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW8
IC204
CHROMA PROCESS
Q219
BYPASS FILTER
L226,C268
RT202
REC CHROMA LEVEL
Q217
SECAM SW
Lo:ON
D211
D209
D207
D208
VIDEO HEAD
CH-1
CH-2
CH-3
CH-4
CN214
PG214
12 CH-1 REC
11 CH-1 PB
10 GND
9 CH-2 REC
8 CH-2 PB
7 GND
6 CH-3 REC
5 CH-3 PB
4 GND
3 CH-4 REC
2 CH-4 PB
1 GND
SW12.5Hz 1C
4.43MHz 2C
C.SYNC 3C
SW15Hz 4C
HEAD SW1 5C
HEAD SW2 6C
HEAD SW3 7C
HEAD SW4 8C
To MAIN (SERVO)
1C - 8C
1A VIDEO
2A PB 5V
3A MONITOR CUT
4A GND
5A CURRENT UP
6A VIDEO
7A REC
8A STBY 5V
9A 9V
10A SECAM
To MAIN (SYS.CON)
1A - 10A
D203
REC 5V
Q201
PB SW
PB 5V
TP206
TP201
C201
C202
C203
C204
Lo:ON
IC201
HEAD SW
Q211
PB 9V REG
9V
Q212
PB 9V SW
Q213
REC 9V REG
Q214
REC 9V SW
Q215
REC 5V REG
STBY 5V
Q216
REC 5V SW
MAIN (LUMA/CHROMA CECTION) P.C.B

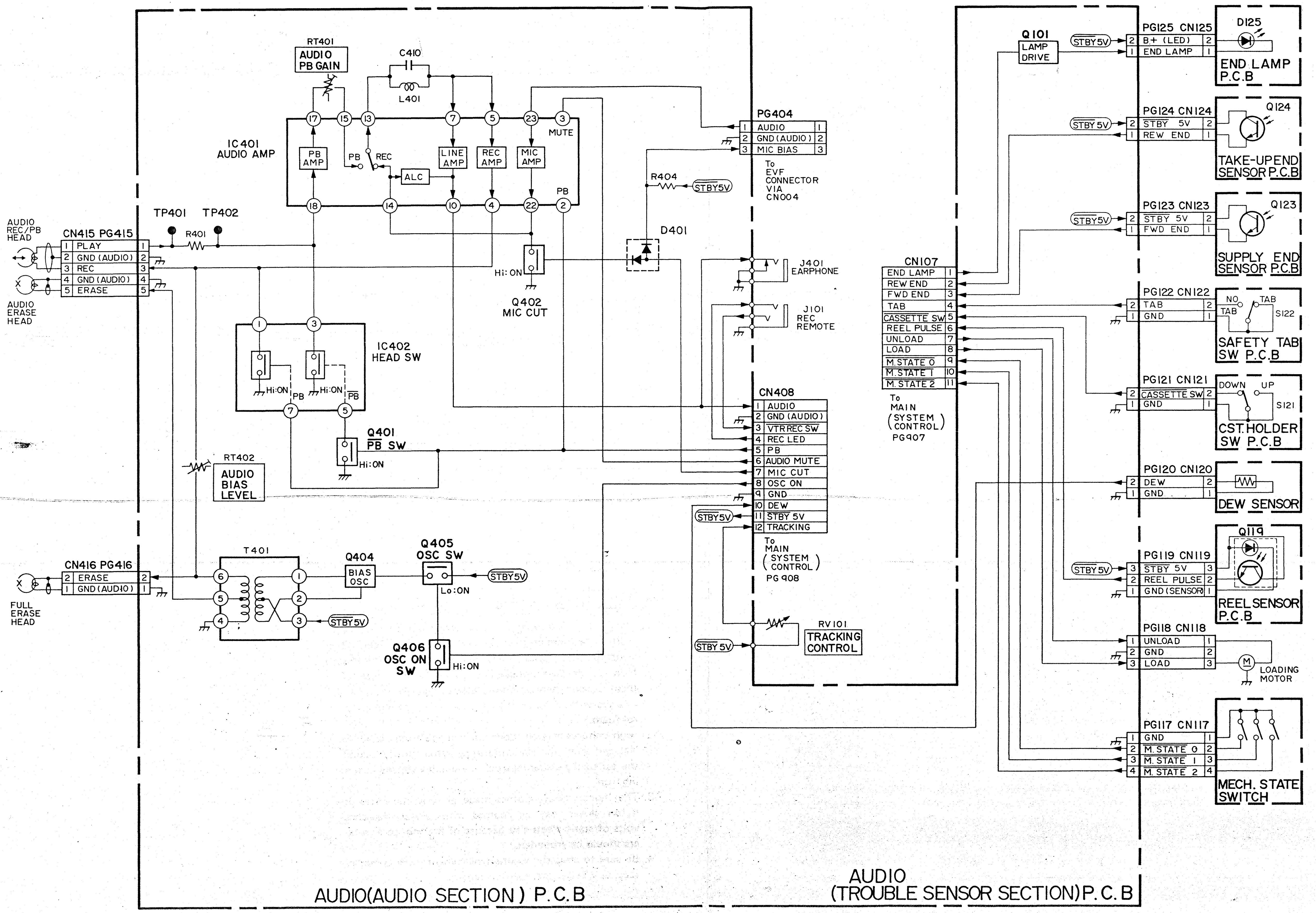
• SWITCHING REGULATOR BLOCK DIAGRAM


12V
2E
Q952
REG
RIPPLE FILTER
1G
B+(CAPST.)
To MAIN (CYL-/CAPST- MOTORS DRIVE)
1G
Q953
Hi:ON
Q954
D954
5E
REC
Q951
REG
RIPPLE FILTER
IC906 SWITCHING REGULATOR
D953
3E
STBY 5V
4E
GND
To MAIN (SYSTEM CONTROL)
1E - 5E
4
5
6
VREF REG
SAWTOOTH GEN
2
PWM COMP
DRIVER
POWER SAVE/ SHORT PROTECT
1
ERROR AMP
1
1E
SAVE
3
R955
8
RT951
5V ADJ
MAIN (SWITCHING REGULATOR) P.C.B

• FUNCTION SW BLOCK DIAGRAM


IC050
LCD COUNTER μP
1 1/2 REEL PULSE
Q051
RESET
2 CLEAR
3 BATTERY EMPTY
R053
5V
4 SAVE
5 Vcc
RESET
MEMORY
8 MEMORY STOP
9 COUNTER 0 (UP/DOWN)
10 COUNTER 1 (UP/DOWN)
CN005
1 5V
2 POWER SW
3 GND
4 CAMERA/VTR
5 ———
6 1/2REEL PULSE
7 LCD B+
8 MEMORY STOP
9 COUNTER 0
10 COUNTER 1
11 ———
To MAIN (SYSTEM CONTROL) PG905
5V
S056 POWER SW
S050 CAMERA/VTR SW
CAMERA ←→ VTR
5V
S051 PAUSE
S052 REWIND
S055 STOP
S053 F.FWD
S054 PLAY
CN006
1 PHASE 0
2 PHASE 1
3 MAT 0
4 MAT 1
5 MAT 2
6 ———
7 EJECT SW
8 LED 0 (PAUSE)
9 LED 1 (REWIND)
10 LED2(PLAY/F.FWD)
11 LED3(POWER)
To MAIN (SYSTEM CONTROL) PG906
S057 EJECT SW
D050
D051
5V
Q052 SW
Hi:ON
Q053 SW
Hi:ON
D080 POWER
D083 F.FWD
D084 PLAY
D082 REWIND
D081 PAUSE
Hi:ON
Hi:ON
Hi:ON
Hi:ON
Q054 SW
Q057 SW
Q056 SW
Q055 SW
FUNCTION SWITCH P.C.B

• AUDIO· TROUBLE SENSOR BLOCK DIAGRAM


RT401
AUDIO PB GAIN
C410
L401
IC401
AUDIO AMP
PB AMP
PB
REC
ALC
LINE AMP
REC AMP
MIC AMP
MUTE
PB
17
15
13
7
5
23
3
18
14
10
4
22
2
PG404
1 AUDIO 1
2 GND (AUDIO) 2
3 MIC BIAS 3
To EVF CONNECTOR VIA CN004
R404
STBY5V
D401
AUDIO REC/PB HEAD
CN415 PG415
1 PLAY 1
2 GND (AUDIO) 2
3 REC 3
4 GND (AUDIO) 4
5 ERASE 5
AUDIO ERASE HEAD
TP401
TP402
R401
Hi: ON
Q402
MIC CUT
J401
EARPHONE
J101
REC REMOTE
IC402
HEAD SW
1
3
Hi:ON
PB
Hi:ON
PB
7
5
Q401
PB SW
Hi:ON
RT402
AUDIO BIAS LEVEL
CN408
1 AUDIO
2 GND (AUDIO)
3 VTRREC SW
4 REC LED
5 PB
6 AUDIO MUTE
7 MIC CUT
8 OSC ON
9 GND
10 DEW
11 STBY 5V
12 TRACKING
STBY5V
To MAIN (SYSTEM CONTROL) PG908
CN416 PG416
2 ERASE 2
1 GND (AUDIO) 1
FULL ERASE HEAD
T401
6
5
4
1
2
3
Q404
BIAS OSC
Q405
OSC SW
Lo:ON
STBY5V
Q406
OSC ON SW
Hi:ON
RV101
TRACKING CONTROL
STBY 5V
Q101
LAMP DRIVE
CN107
END LAMP 1
REW END 2
FWD END 3
TAB 4
CASSETTE SW 5
REEL PULSE 6
UNLOAD 7
LOAD 8
M.STATE 0 9
M.STATE 1 10
M.STATE 2 11
To MAIN (SYSTEM CONTROL) PG907
PG125 CN125
2 B+ (LED) 2
1 END LAMP 1
D125
END LAMP P.C.B
PG124 CN124
2 STBY 5V 2
1 REW END 1
Q124
TAKE-UP END SENSOR P.C.B
PG123 CN123
2 STBY 5V 2
1 FWD END 1
Q123
SUPPLY END SENSOR P.C.B
PG122 CN122
2 TAB 2
1 GND 1
NO TAB
TAB
S122
SAFETY TAB SW P.C.B
PG121 CN121
2 CASSETTE SW 2
1 GND 1
DOWN
UP
S121
CST. HOLDER SW P.C.B
PG120 CN120
2 DEW 2
1 GND 1
DEW SENSOR
Q119
PG119 CN119
3 STBY 5V 3
2 REEL PULSE 2
1 GND (SENSOR) 1
REEL SENSOR P.C.B
PG118 CN118
1 UNLOAD 1
2 GND 2
3 LOAD 3
M
LOADING MOTOR
PG117 CN117
1 GND 1
2 M. STATE 0 2
3 M. STATE 1 3
4 M. STATE 2 4
MECH. STATE SWITCH
AUDIO(AUDIO SECTION) P.C.B
AUDIO (TROUBLE SENSOR SECTION) P.C.B

MEMO

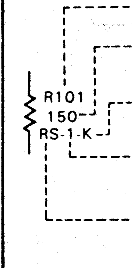
SCHEMATIC DIAGRAMS AND CIRCUIT BOARD DIAGRAMS

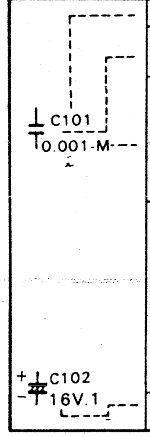
WHEN USING THIS SERVICE REFERENCE MATERIAL

1. How to read abbreviations

Note

1. Voltage measured at base of chassis with minimum volume control and no signal.
2. Nomenclature of Resistors and Capacitors.

	Circuit No.	
	Value	No indicated Ω (Ohm) M : 1000kΩ
	Tolerance	No indicated ± 5% K: ± 10% M: ± 20%
	Wattage	No indicated ¼ W
	Sort	No indicated Carbon film RC : Composition RW : Wire wound RS : Oxide metal film RN : Fixed metal film

	Circuit No.		
	Value	No indicated μF P : PF	
	Tolerance	No indicated ± 10% J : ± 5% M : ± 20% Z : + 80%, − 20% D : ± 0.5pF C : ± 0.25pF	
	Sort		Ceramic
		+ −	Electrolitic
		M	Mylar
		P	Polyester
		S	Styrol
	Voltage	No indicated 50WV	

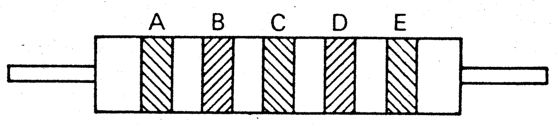
3. Be sure to make your orders of resistors and capacitors with value, voltage, tolerance and sort.

2. Cautions on use of MOS IC

1. The MOS IC is inserted in black foam for shipment. This foam is a conductor which short-circuits between the leads to prevent damage. Do not remove ICs from this foam during their storage. Avoid removing ICs from this foam, placing them on plastic which is likely to be charged with static electricity or inserting them into styrol foam.
2. High voltages may be applied during doldering caused by leakages from the soldering iron, so be sure to ground the tip of the soldering iron or use a low voltage soldering iron.
3. The human body, clothes made of synthetic fibres or nylon gloves may be charged with several thousands volts of static electricity because of friction, so a workers should be grounded.
4. Be sure to ground measuring instruments such as oscilloscopes, VTVMs, etc. used for repairs.

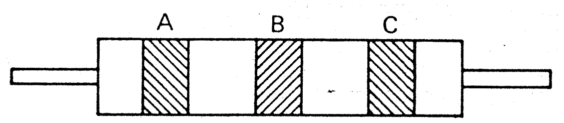
3. How to read capacity and inductance of resistor shape capacitors and coils

CAPACITOR



CAPACITY: (10A+B)xC [PF]
TOLERANCE: D
RATED VOLTAGE: BODY COLOR
Pink: 25V
Green: 50V
CHARACTERISTICS: E

COIL



INDUCTANCE: (10A+B)xC [μH]

COLOR	A, B	C	D	E
Black	0	10^0	±20%	For temperature compensation
Brown	1	10^1		
Red	2	10^2		
Orange	3	10^3		
Yellow	4	10^4		
Green	5	10^5		
Blue	6			
Violet	7			
Grey	8		±30%	High dielectric constant type
White	9			For temperature compensation
Gold		10^{-1}	± 5%	
Silver		10^{-2}	±10%	High dielectric constant type

SCHEMATIC DIAGRAMS AND CIRCUIT BOARD DIAGRAMS CONTENTS

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- ELECTRONIC VIEWFINDER
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  - SCHEMATIC DIAGRAM
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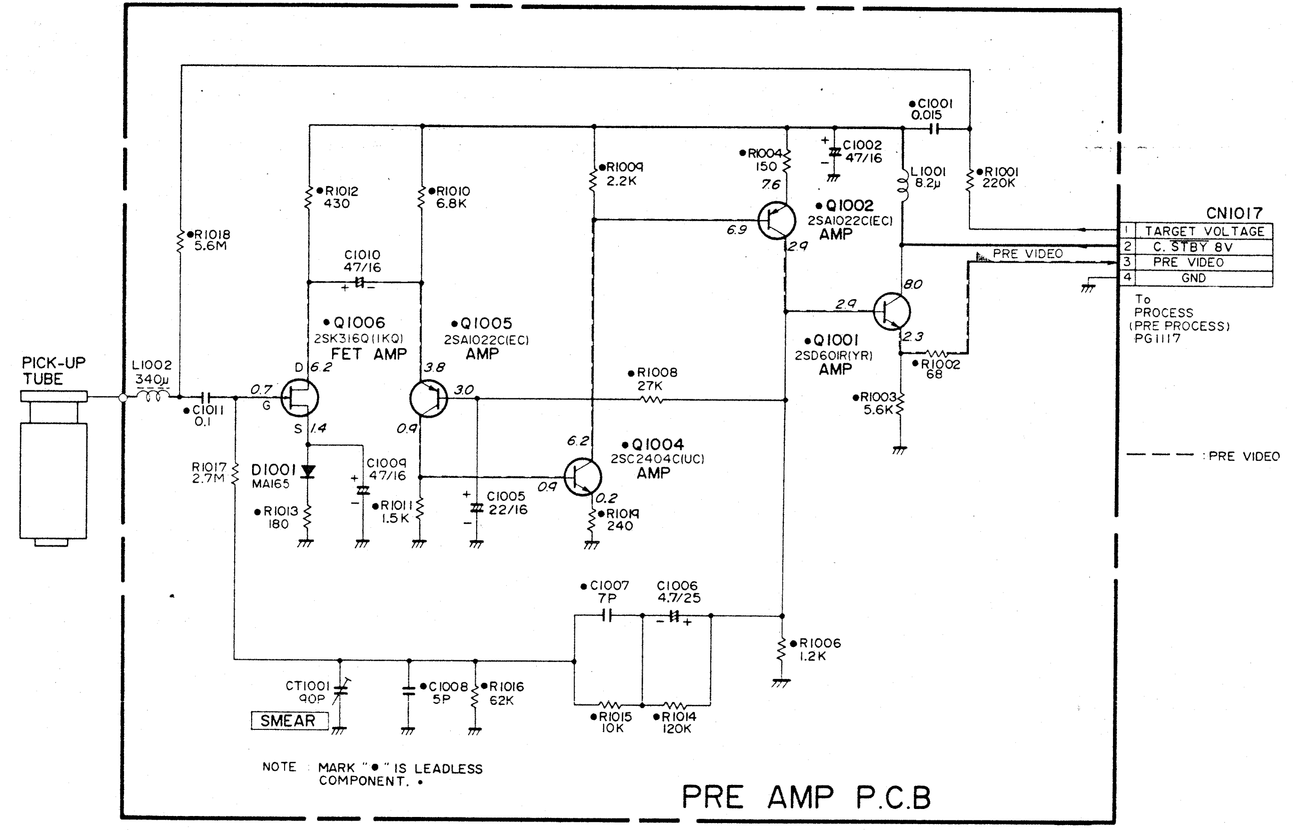
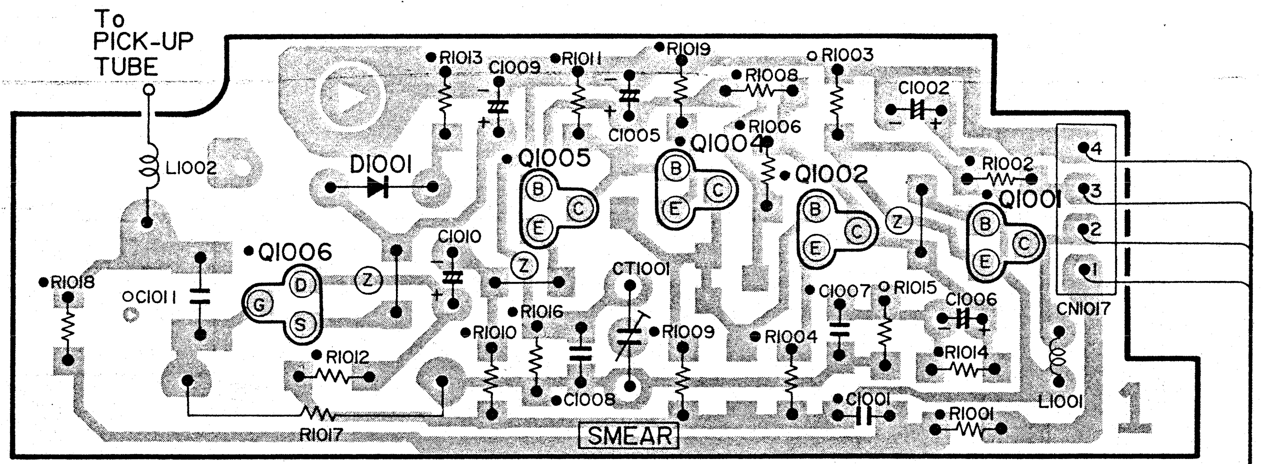
PRE AMP SCHEMATIC DIAGRAM



PICK-UP TUBE
L1002 340μ
●C1011 0.1
●R1018 5.6M
R1017 2.7M
D1001 MA165
●R1013 180
●R1012 430
C1010 47/16
●Q1006 2SK316Q(1KQ) FET AMP
D 6.2
0.7 G
S 1.4
C1009 47/16
●R1011 1.5K
●R1010 6.8K
●Q1005 2SA1022C(EC) AMP
3.8
3.0
0.9
C1005 22/16
●Q1004 2SC2404C(UC) AMP
6.2
0.9
0.2
●R1019 240
●R1009 2.2K
●R1008 27K
●R1004 150
7.6
C1002 47/16
●Q1002 2SA1022C(EC) AMP
6.9
2.9
●C1001 0.015
L1001 8.2μ
●R1001 220K
●Q1001 2SD601R(YR) AMP
2.9
8.0
2.3
●R1002 68
●R1003 5.6K
PRE VIDEO
CN1017
1 TARGET VOLTAGE
2 C. STBY 8V
3 PRE VIDEO
4 GND
To PROCESS (PRE PROCESS) PG1117
– – – :PRE VIDEO
●C1007 7P
C1006 4.7/25
●R1006 1.2K
CT1001 90P
SMEAR
●C1008 5P
●R1016 62K
●R1015 10K
●R1014 120K
NOTE MARK "●" IS LEADLESS COMPONENT.
PRE AMP P.C.B

VM200E PRE AMP SCHEMATIC

PRE AMP CIRCUIT BOARD DIAGRAM



To PICK-UP TUBE
L1002
●R1018
C1011
●Q1006
D
G
S
D1001
●R1013
C1009
●R1011
●R1019
C1005
●R1008
●R1006
●R1003
C1002
●Q1005
●Q1004
●Q1002
●R1002
●Q1001
B
C
E
C1010
CT1001
●R1016
●R1010
●R1012
R1017
●C1008
SMEAR
●R1009
●R1004
●C1007
●R1015
C1006
●R1014
●C1001
●R1001
L1001
CN1017
1
2
3
4

NOTE : MARK "Ⓩ" IS LEADLESS JUMPER.

PRE AMP P.C.B

Q1006	
D	6.2
G	0.7
S	1.4

Q1005	
B	3.0
C	0.9
E	3.8

Q1004	
B	0.9
C	6.2
E	0.2

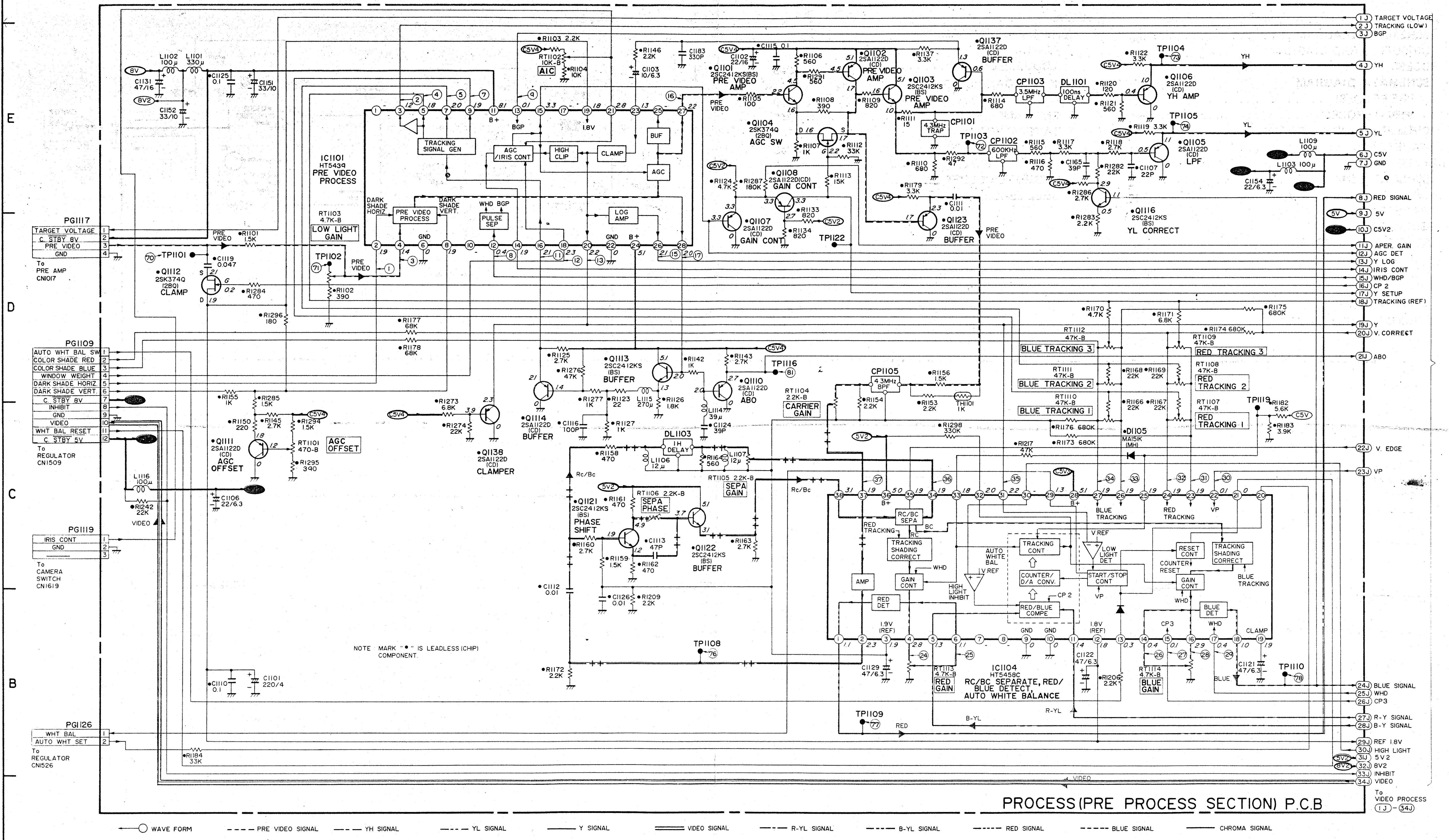
Q1002	
B	6.9
C	2.9
E	7.6

Q1001	
B	2.9
C	8.0
E	2.3

To
PROCESS
(PRE PROCESS)
PG1117

CN1017	
TARGET VOLTAGE	1
C. STBY 8V	2
PRE VIDEO	3
GND	4

PROCESS (PRE PROCESS) SCHEMATIC DIAGRAM


E
D
C
B
A
IC1101
HT5434
PRE VIDEO
PROCESS
TRACKING SIGNAL GEN
AGC /IRIS CONT
HIGH CLIP
CLAMP
BUF
AGC
PRE VIDEO PROCESS
DARK SHADE HORIZ.
DARK SHADE VERT.
WHD BGP
PULSE SEP
LOG AMP
LOW LIGHT GAIN
RT1103 4.7K-B
RT1102 10K-B
AIC
R1103 2.2K
R1104 10K
L1102 100µ
L1101 330µ
C1131 47/16
C1125 0.1
C1151 33/10
C1152 33/10
8V
8V2
C5V4
C5V2
BGP
B+
GND
1.8V
PGI117
TARGET VOLTAGE
C. STBY 8V
PRE VIDEO
GND
To PRE AMP CN1017
TP1101
TP1102
Q1112 2SK3740 (2B0) CLAMP
R1101 1.5K
C1119 0.047
R1284 470
R1102 390
R1296 180
R1177 68K
R1178 68K
PG1109
AUTO WHT BAL SW
COLOR SHADE RED
COLOR SHADE BLUE
WINDOW WEIGHT
DARK SHADE HORIZ.
DARK SHADE VERT.
C. STBY 8V
INHIBIT
GND
VIDEO
WHT BAL RESET
C. STBY 5V
To REGULATOR CN1509
R1155 1K
R1285 1.5K
R1145 2.7K
R1294 1.5K
R1150 220
RT1101 470-B
R1295 390
Q1111 2SA1122D (CD) AGC OFFSET
AGC OFFSET
L1116 100µ
R1242 22K
C1106 22/6.3
PG1119
IRIS CONT
GND
To CAMERA SWITCH CN1619
C1110 0.1
C1101 220/4
PG1126
WHT BAL
AUTO WHT SET
To REGULATOR CN1526
R1184 33K
NOTE MARK "•" IS LEADLESS (CHIP) COMPONENT.
R1146 2.2K
C1183 330P
C1103 10/6.3
C1115 0.1
C1102 22/16
Q1101 2SC2412KS(BS) PRE VIDEO AMP
R1105 100
R1106 560
R1291 560
R1108 390
Q1102 2SA1122D (CD) PRE VIDEO AMP
Q1103 2SC2412KS (BS) PRE VIDEO AMP
R1109 820
R1111 15
R1137 3.3K
Q1137 2SA1122D (CD) BUFFER
Q1104 2SK3740 (2B0) AGC SW
R1107 1K
R1112 33K
R1113 15K
Q1108 2SA1122D(CD) GAIN CONT
R1124 4.7K
R1287 180K
Q1107 2SA1122D (CD) GAIN CONT
R1133 820
R1134 820
TP1122
R1179 3.3K
C1111 0.01
Q1123 2SA1122D (CD) BUFFER
R1110 680
R1292 47
4.3MHz TRAP
CP1101
TP1103
CP1102 600KHz LPF
CP1103 3.5MHz LPF
DL1101 100ns DELAY
R1114 680
R1120 120
R1121 560
R1122 3.3K
TP1104
Q1106 2SA1122D (CD) YH AMP
YH
R1119 3.3K
TP1105
YL
R1115 560
R1117 3.3K
R1118 2.7K
R1116 470
C1165 39P
R1282 22K
C1107 22P
Q1105 2SA1122D (CD) LPF
R1286 2.7K
R1283 2.2K
Q1116 2SC2412KS (BS) YL CORRECT
L1109 100µ
L1103 100µ
C1154 22/6.3
R1125 2.7K
R1276 47K
Q1113 2SC2412KS (BS) BUFFER
R1142 1K
R1143 2.7K
TP1116
Q1114 2SA1122D (CD) BUFFER
C1116 100P
R1277 1K
R1123 22
L1115 270µ
R1126 1.8K
R1127 1K
Q1110 2SA1122D (CD) ABO
L1114 39µ
C1124 39P
R1273 6.8K
R1274 22K
Q1138 2SA1122D (CD) CLAMPER
DL1103 1H DELAY
R1158 470
L1106 12µ
R1164 560
L1107 12µ
RT1105 2.2K-B
SEPA GAIN
Rc/Bc
Q1121 2SC2412KS (BS) PHASE SHIFT
R1161 470
RT1106 2.2K-B
SEPA PHASE
Q1122 2SC2412KS (BS) BUFFER
R1160 2.7K
R1159 1.5K
C1113 47P
R1162 470
R1163 2.7K
C1112 0.01
C1126 0.01
R1209 2.2K
R1172 2.2K
TP1108
CP1105 4.3MHz BPF
R1156 1.5K
RT1104 2.2K-B
CARRIER GAIN
R1154 2.2K
R1153 2.2K
TH1101 1K
R1298 330K
R1217 47K
RT1112 47K-B
BLUE TRACKING 3
RT1111 47K-B
BLUE TRACKING 2
RT1110 47K-B
BLUE TRACKING 1
R1170 4.7K
R1171 6.8K
R1174 680K
R1175 680K
RT1109 47K-B
RED TRACKING 3
RT1108 47K-B
RED TRACKING 2
RT1107 47K-B
RED TRACKING 1
R1168 22K
R1169 22K
R1166 22K
R1167 22K
R1176 680K
R1173 680K
D1105 MA151K (MH)
TP1119
R1182 5.6K
R1183 3.9K
IC1104
HT5458C
RC/BC SEPARATE, RED/ BLUE DETECT, AUTO WHITE BALANCE
RC/BC SEPA
TRACKING SHADING CORRECT
AMP
GAIN CONT
RED DET
AUTO WHITE BAL
HIGH LIGHT INHIBIT
TRACKING CONT
COUNTER/ D/A CONV.
RED/BLUE COMPE
LOW LIGHT DET
START/STOP CONT
RESET CONT
COUNTER RESET
GAIN CONT
BLUE DET
TRACKING SHADING CORRECT
RED TRACKING
BLUE TRACKING
V REF
WHD
CP 2
CP3
CLAMP
1.9V (REF)
1.8V (REF)
C1129 47/6.3
RT1113 4.7K-B
RED GAIN
C1122 47/6.3
R1206 2.2K
RT1114 4.7K-B
BLUE GAIN
C1121 47/6.3
TP1109
TP1110
RED
B-YL
R-YL
VIDEO
1J TARGET VOLTAGE
2J TRACKING (LOW)
3J BGP
4J YH
5J YL
6J C5V
7J GND
8J RED SIGNAL
9J 5V
10J C5V2
11J APER. GAIN
12J AGC DET
13J Y LOG
14J IRIS CONT
15J WHD/BGP
16J CP 2
17J Y SETUP
18J TRACKING (REF)
19J Y
20J V. CORRECT
21J ABO
22J V. EDGE
23J VP
24J BLUE SIGNAL
25J WHD
26J CP3
27J R-Y SIGNAL
28J B-Y SIGNAL
29J REF 1.8V
30J HIGH LIGHT
31J 5V2
32J 8V2
33J INHIBIT
34J VIDEO
To VIDEO PROCESS (1J)-(34J)
PROCESS (PRE PROCESS SECTION) P.C.B
WAVE FORM
PRE VIDEO SIGNAL
YH SIGNAL
YL SIGNAL
Y SIGNAL
VIDEO SIGNAL
R-YL SIGNAL
B-YL SIGNAL
RED SIGNAL
BLUE SIGNAL
CHROMA SIGNAL

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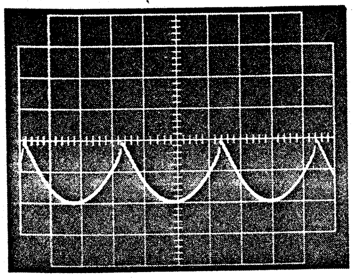
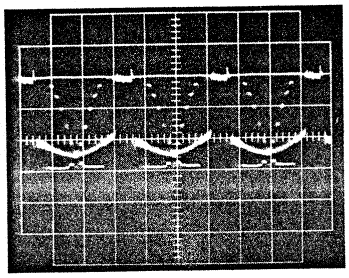
1 2 3 4 5 6 7 8

PROCESS WAVEFORMS

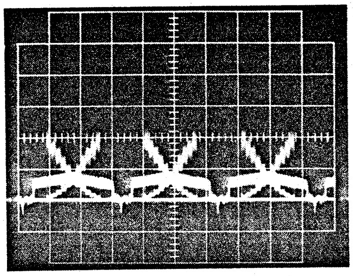
1-A IC1101-2
50 mV/20 μsec. cm



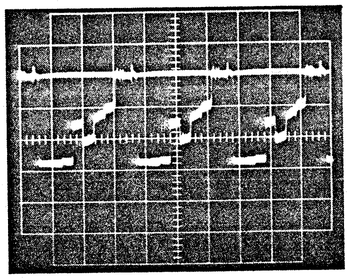
2-A IC1101-3
50 mV/20 μsec. cm



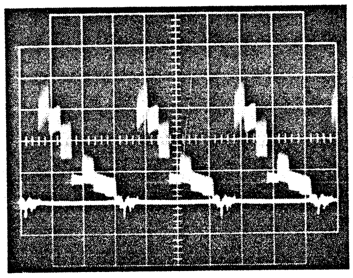
3-A IC1101-4
0.1V/20 μ sec. cm



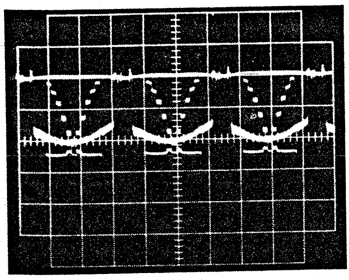
2-B IC1101-3 (Colour bar)
50 mV/20 μsec. cm



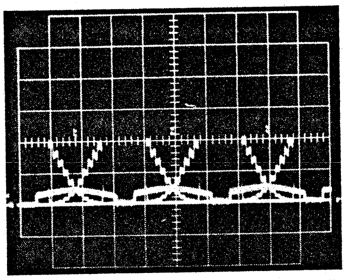
3-B IC1101-4 (Colour bar)
50 mV/20 μsec. cm



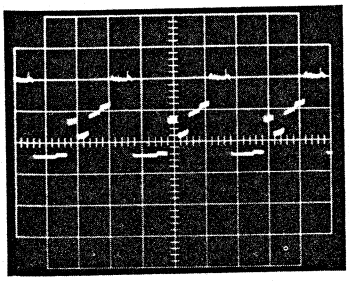
4-A IC1101-5
0.1V/20 μsec. cm



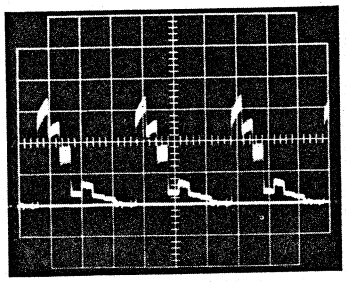
5-A IC1101-7
0.2V/20 μsec. cm



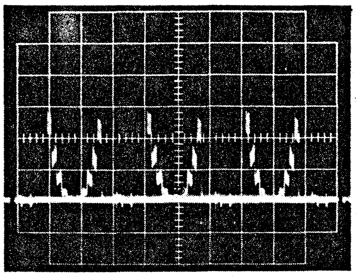
4-B IC1101-5 (Colour bar)
0.1V/20 μsec. cm



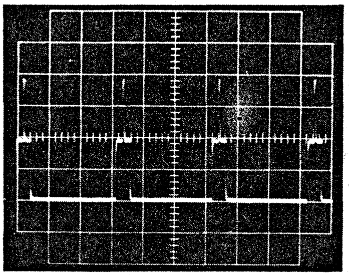
5 B IC1101-7 (Colour bar)
0.1V/20 μsec. cm



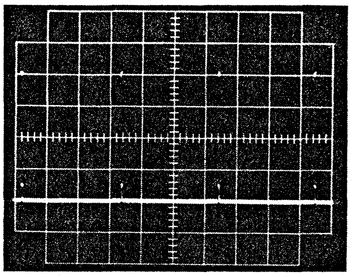
7-A IC1101-9
50 mV/20 μsec. cm



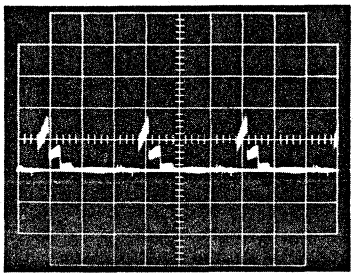
8-A IC1101-12
1V/20 μsec. cm



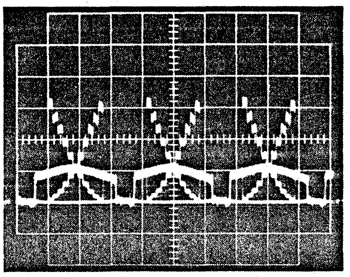
9-A IC1101-13
1V/20 μsec. cm



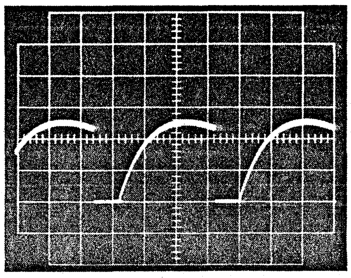
7-B 1101-9 (Colour bar)
50 mV/20 μsec. cm



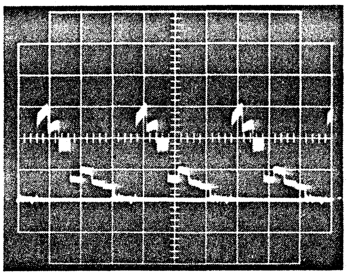
11-A IC1101-16
0.1V/20 μsec. cm



12-A IC1101-18
1V/5 msec. cm

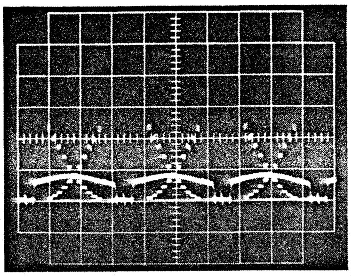


11-B IC1101-16 (Colour bar)
0.1V/20 μsec. cm

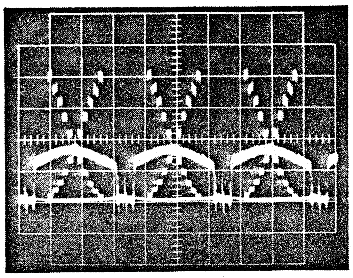


PROCESS WAVEFORMS

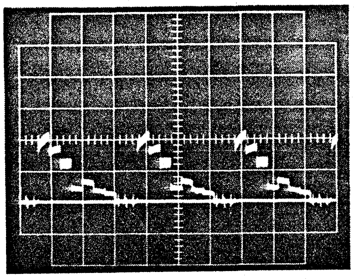
13-A IC1101-20
0.2V/20 μsec. cm



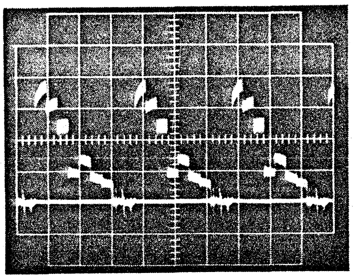
15-A IC1101-26
50 mV/20 μsec. cm



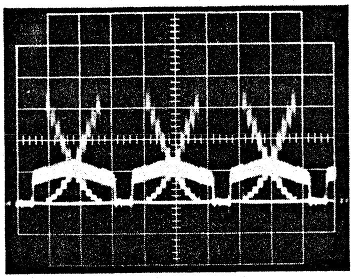
13-B IC1101-20 (Colour bar)
0.2V/20 μsec. cm



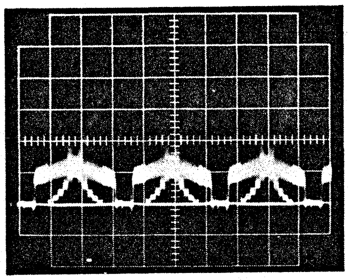
15-B IC1101-26 (Colour bar)
50 mV/20 μsec. cm



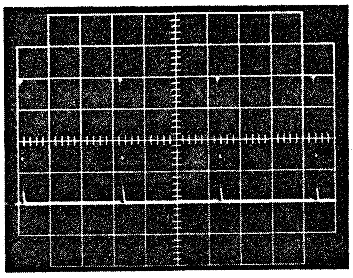
16-A IC1101-27
0.1V/20 μsec. cm



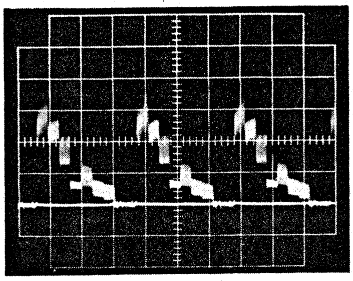
17-A IC1101-28
0.1V/20 μsec. cm



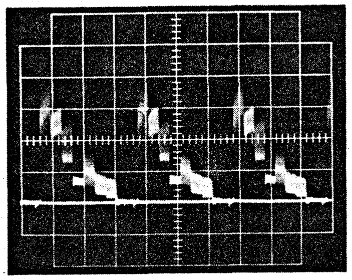
18-A IC1102-6
1V/20 μsec. cm



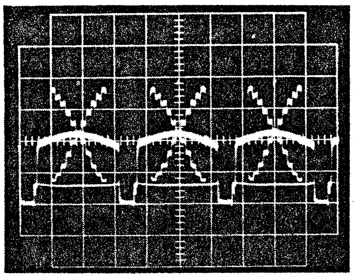
16-B IC1101-27 (Colour bar)
0.1V/20 μsec. cm



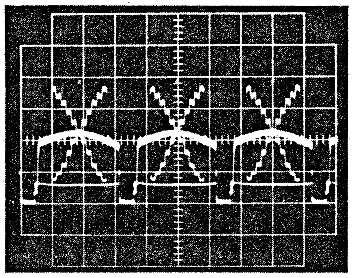
17-B IC1101-28 (Colour bar)
0.1V/20 μsec. cm



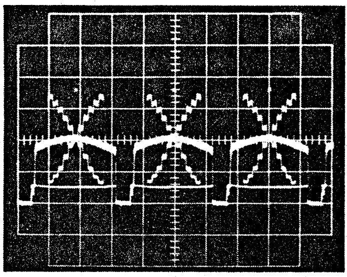
19-A IC1102-11
0.2V/20 μsec. cm



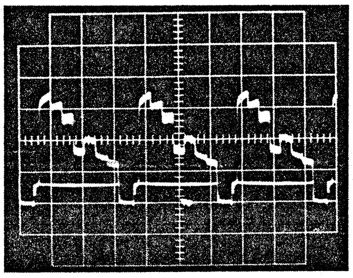
20-A IC1102-12
0.2V/20 μsec. cm



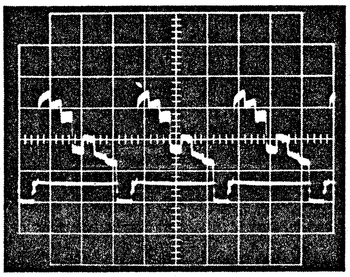
21-A IC1102-13
0.2V/20 μsec. cm



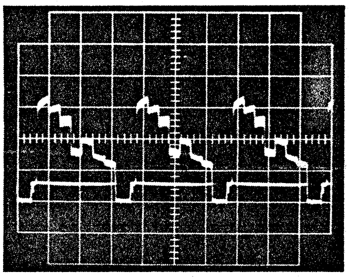
19-B IC1102-11 (Colour bar)
0.2V/20 μsec. cm



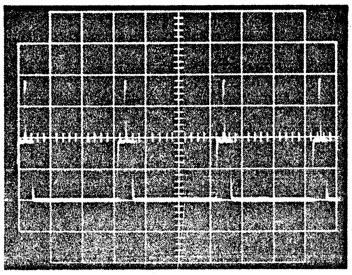
20-B IC1102-12 (Colour bar)
0.2V/20 μsec. cm



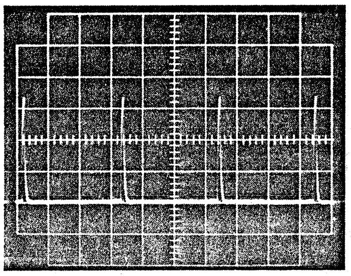
21-B IC1102-13 (Colour bar)
0.2V/20 μsec. cm



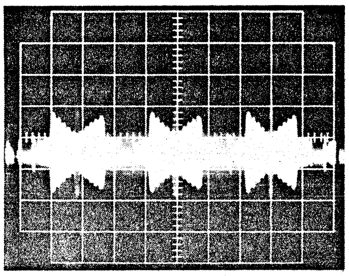
22-A IC1102-15
1V/20 μsec. cm



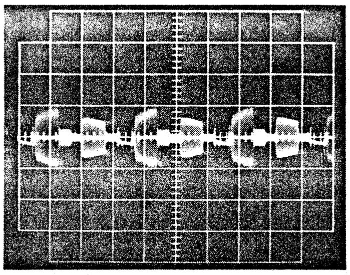
23-A IC1102-16
1V/20 μsec. cm



24-A IC1104-4
0.1V/20 μsec. cm

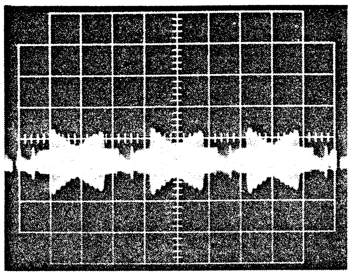


24-B IC1104-4 (Colour bar)
0.1V/20 μsec. cm

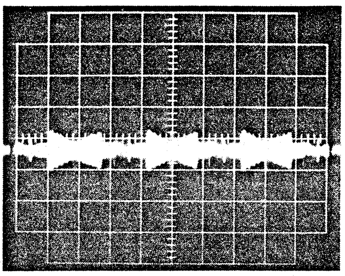


PROCESS WAVEFORMS

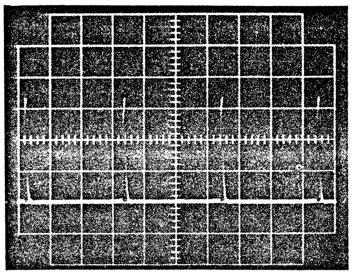
25-A IC1104-6
50 mV/20 μsec. cm



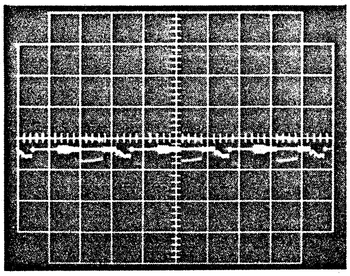
26-A IC1104-14
50 mV/20 μsec. cm



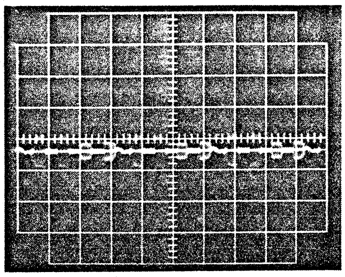
27-A IC1104-15
1V/20 μsec. cm



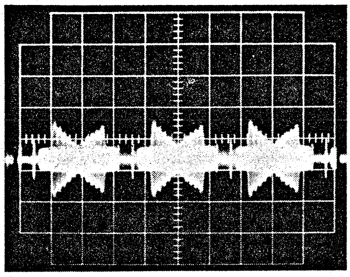
25-B IC1104-6 (Colour bar)
50 mV/20 μsec. cm



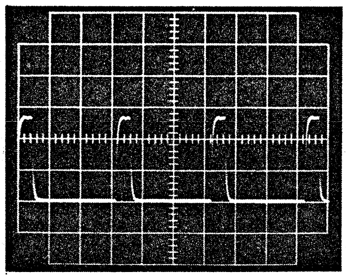
26-B IC1104-14 (Colour bar)
50 mV/20 μsec. cm



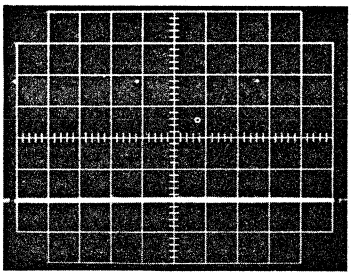
28-A IC1104-16
0.2V/20 μsec. cm



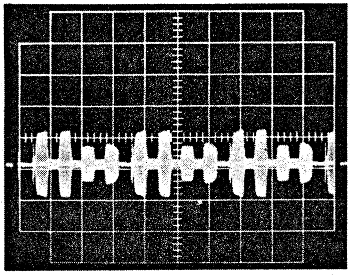
29-A IC1104-17
1V/20 μsec. cm



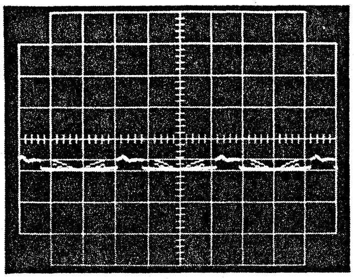
30-A IC1104-22
0.5V/5 msec. cm



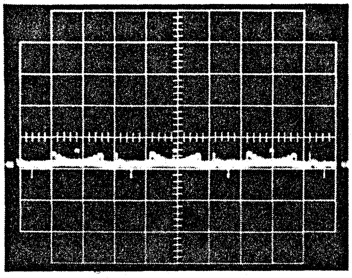
28-B IC1104-16 (Colour bar)
0.2V/20 μsec. cm



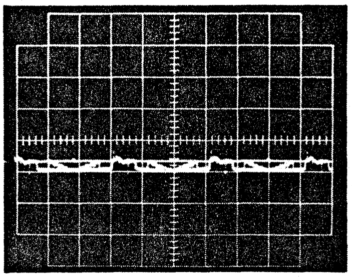
31-A IC1104-26
50 mV/20 μsec. cm



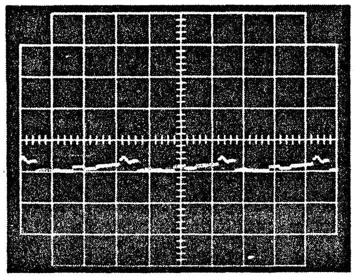
32-A IC1104-24
50 mV/20 μsec. cm



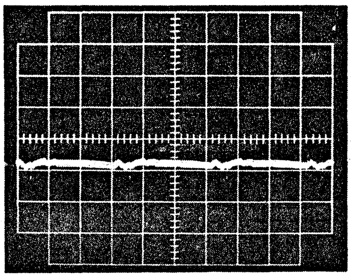
33-A IC1104-26
50 mV/20 μsec. cm



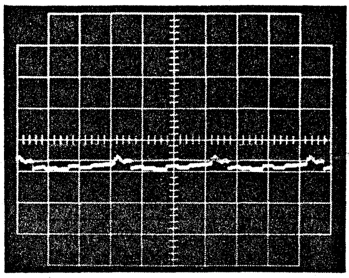
31-B IC1104-23 (Colour bar)
50 mV/20 μsec. cm



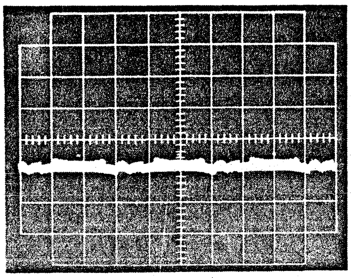
32-B IC1104-24 (Colour bar)
50 mV/20 μsec. cm



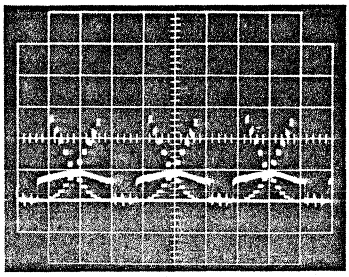
33-B IC1104-26 (Colour bar)
50 mV/20 μsec. cm



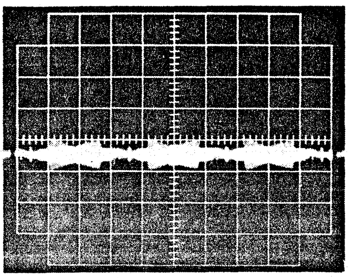
34-A IC1104-27
50 mV/20 μsec. cm



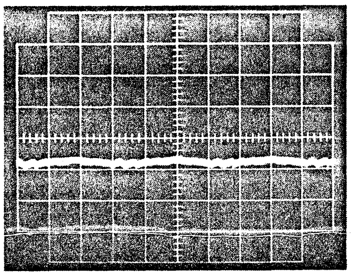
35-A IC1104-31
0.2V/20 μ sec. cm



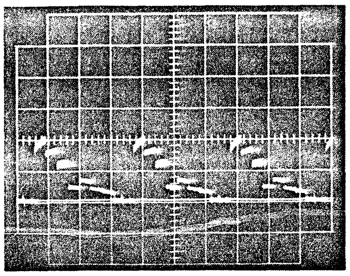
36-A IC1104-34
50 mV/20 μ sec. cm



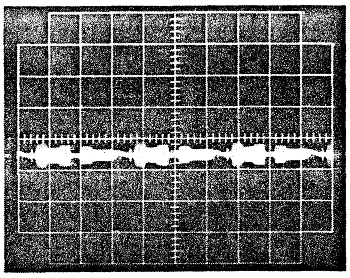
34-B IC1104-27 (Colour bar)
50 mV/20 μsec. cm



35-B IC1104-31 (Colour bar)
0.2V/20 μ sec. cm



36-B IC1104-34 (Colour bar)
50 mV/20 μ sec. cm



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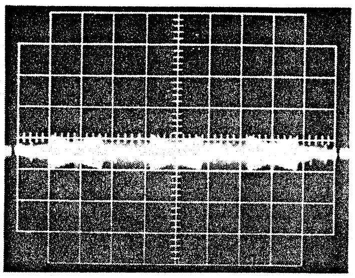
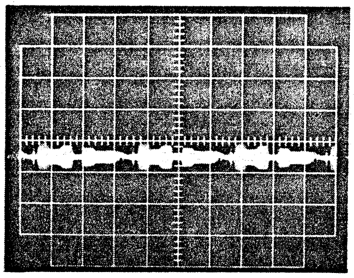
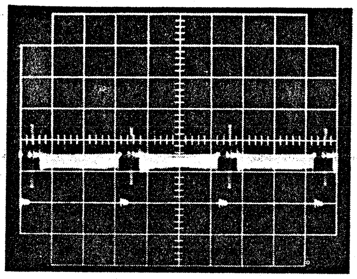
37-A IC1104-37
50 mV/20 μsec. cm



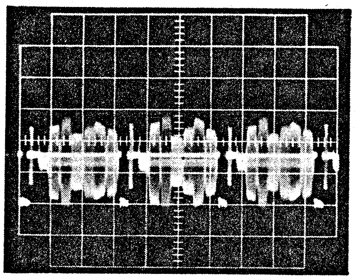
37-B IC1104-37 (Colour bar)
50 mV/20 μsec. cm



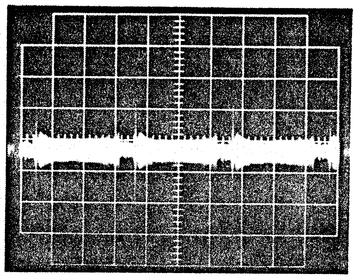
40-A IC1105-5
0.1V/20 μsec. cm



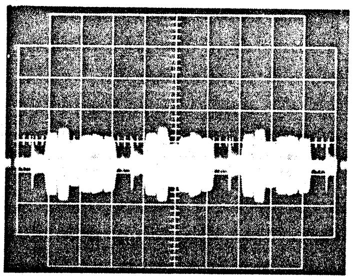
40-B IC1105-5 (Colour bar)
0.1V/20 μsec. cm



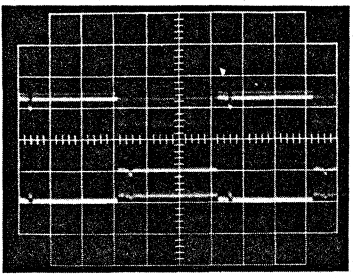
39-A IC1105-4
0.1V/20 μsec. cm



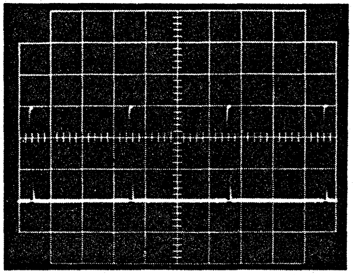
39-B IC1105-4 (Colour bar)
0.2V/20 μ sec. cm



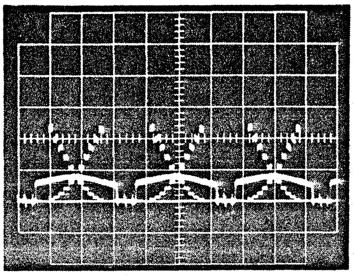
43-A IC1105-8
0.2V/20 µsec. cm



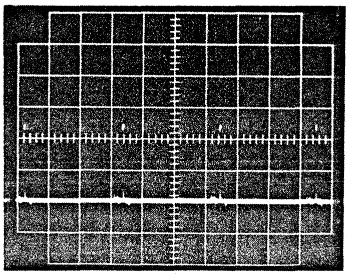
45-A IC1105-11
1V/20 µsec. cm



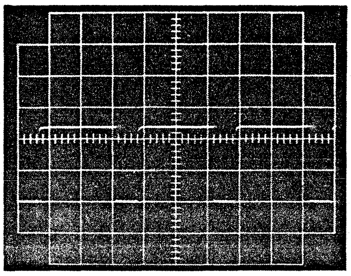
46-A IC1105-12
0.2V/20 µsec. cm



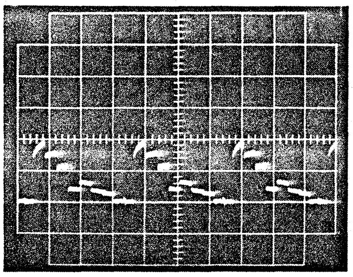
47-A IC1105-18
0.2V/20 µsec. cm



48-A IC1105-20
2V/20 µsec. cm



46-B IC1105-12 (Colour bar)
0.2V/20 µsec. cm



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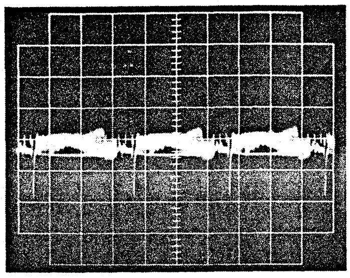
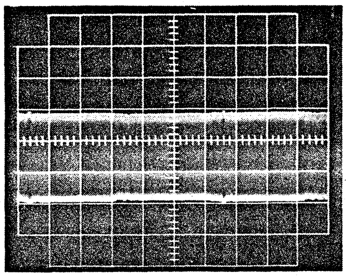
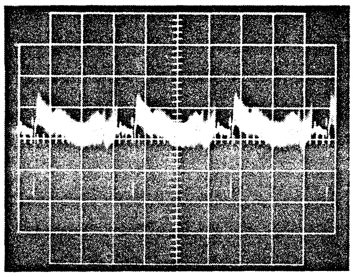
49-A IC1105-21
50 mV/20 μsec. cm



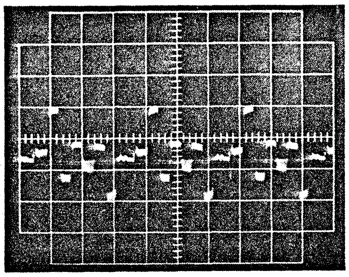
50-A IC1105-23
0.2V/20 μsec. cm



51-A IC1105-24
50 mV/20μsec. cm

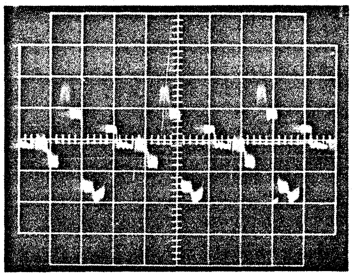


49-B IC1105-21 (Colour bar)
0.1V/20 μsec. cm

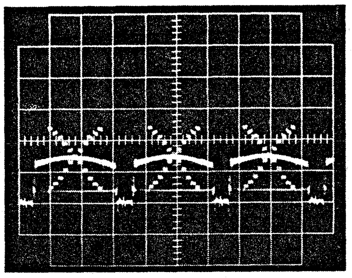


50-A

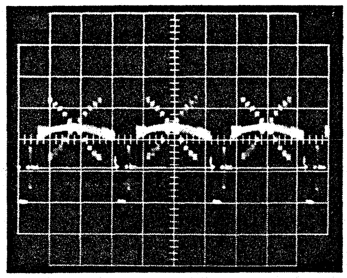
51-B IC1105-24 (Colour bar)
0.1V/20 μsec. cm



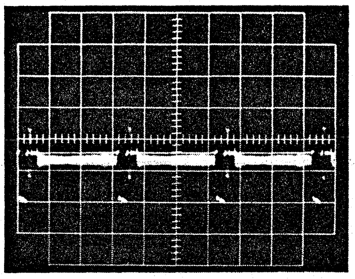
52-A IC1105-25
0.2V/20 μsec. cm



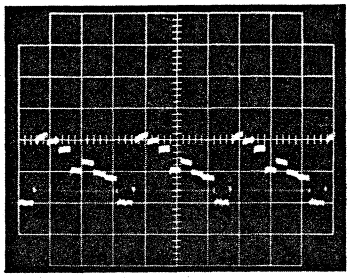
53-A IC1105-27
0.5V/20 μsec. cm



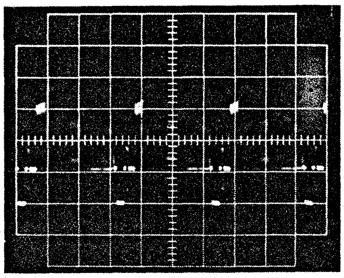
54-A IC1105-28
0.1V/20 μsec. cm



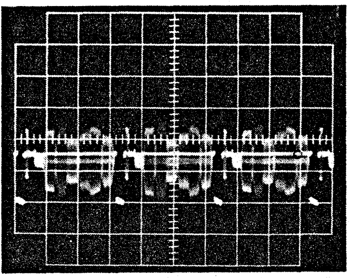
52-B IC1105-25 (Colour bar)
0.2V/20 μsec. cm



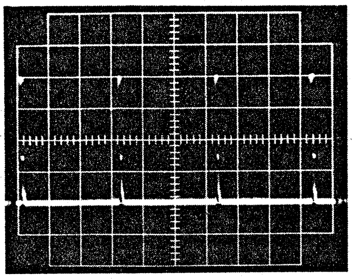
53-B IC1105-27 (Colour bar)
0.5V/20 μsec. cm



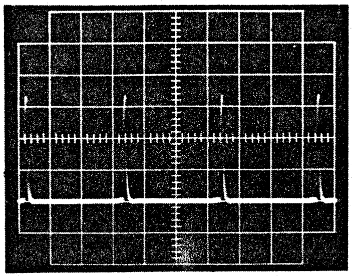
54-B IC1105-28 (Colour bar)
0.1V/20 μsec. cm



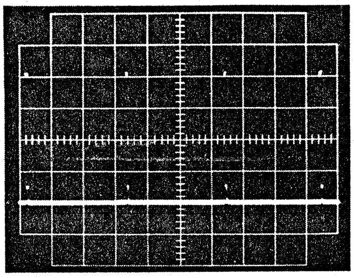
56-A IC1106-2
1V/20 μsec. cm



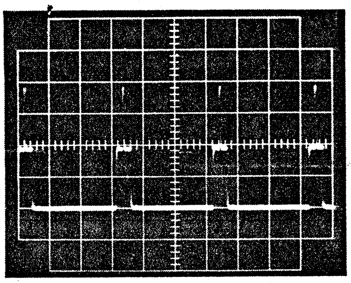
57-A IC1106-3
1V/20 sec. cm



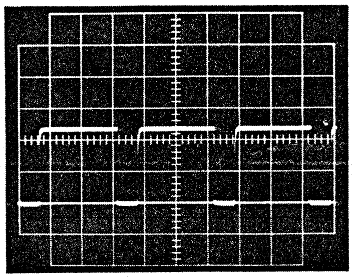
58-A IC1106-6
1V/20 sec. cm



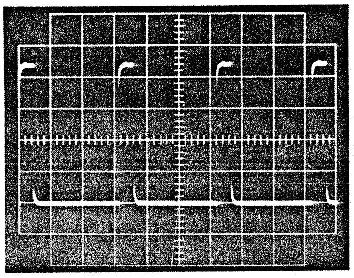
59-A IC1106-7
1V/20 sec. cm



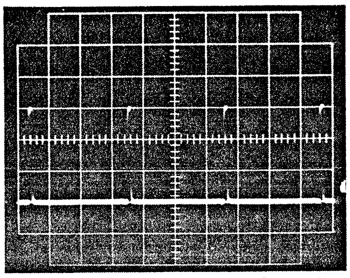
60-A IC1106-8
2V/20 μsec. cm



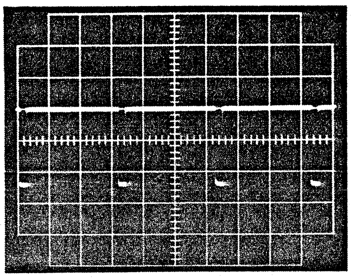
61-A IC1106-11
1V/20 μsec. cm



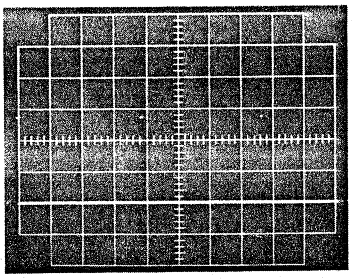
62-A IC1106-12
1V/20 μsec. cm



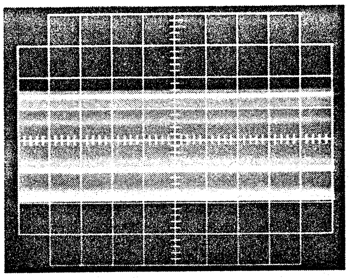
63-A IC1106-13
2V/20 μsec. cm



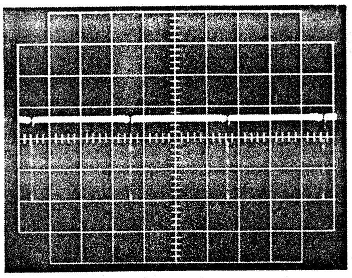
64-A IC1106-14
2V/5 msec. cm



65-A IC1106-17
0.2V/20 μsec. cm

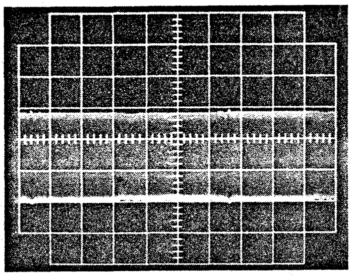


66-A IC1106-18
0.5V/20 μsec. cm

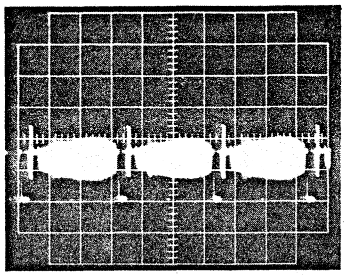


PROCESS WAVEFORMS

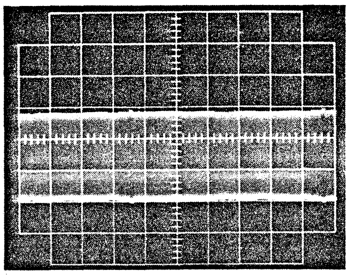
67-A IC1106-19
0.2V/20 μsec. cm



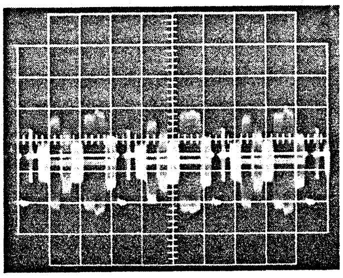
68-A IC1107-7
0.1V/20 μsec. cm



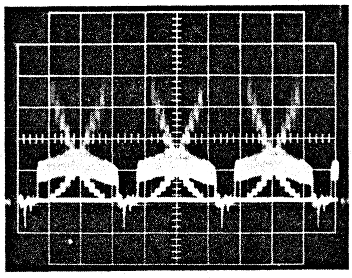
69-A IC1109-10
0.2V/20 μsec. cm



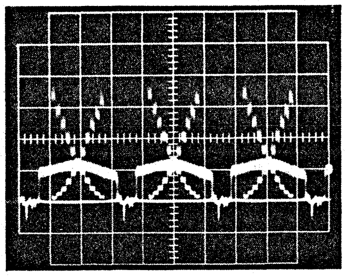
48-B IC1107-7 (Colour bar)
0.1V/20 μsec. cm



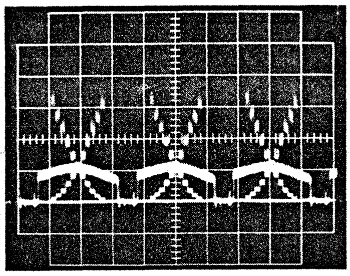
70-A TP1101
0.1V/20 μsec. cm



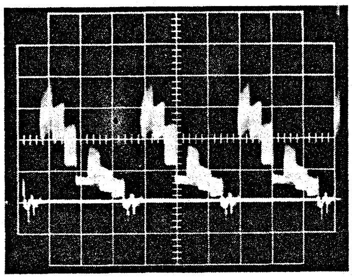
71-A TP1102
0.1V/20 μsec. cm



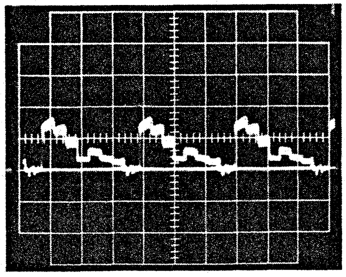
72-A TP1103
0.1V/20 μsec. cm



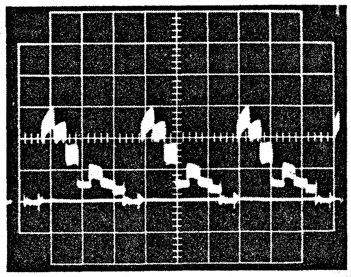
70-B TP1101 (Colour bar)
0.1V/20 μsec. cm



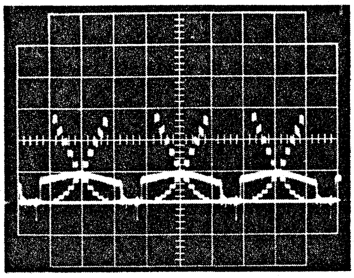
71-B TP1102 (Colour bar)
0.1V/20 μsec. cm



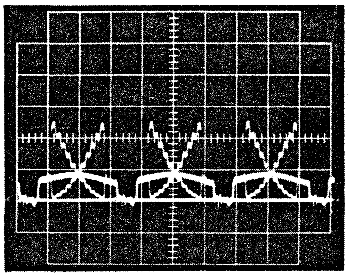
72-B TP1103 (Colour bar)
0.1V/20 μsec. cm



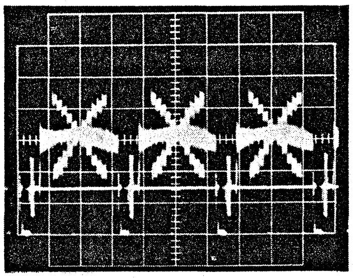
73-A TP1104
50 mV/20 μsec. cm



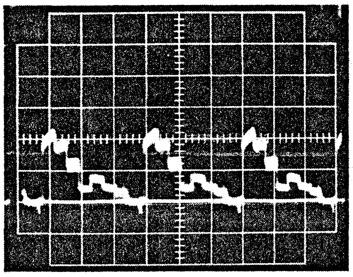
74-A TP1105
50 mV/20 μsec. cm



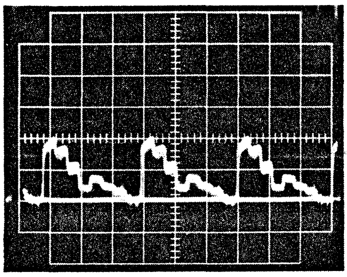
75-A TP1107
0.2V/20 μsec. cm



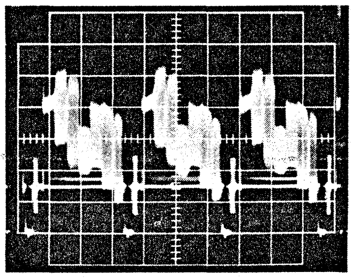
73-B TP1104 (Colour bar)
50 mV/20 μsec. cm



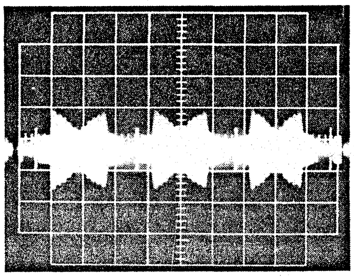
74-B TP1105 (Colour bar)
50 mV/20 μsec. cm



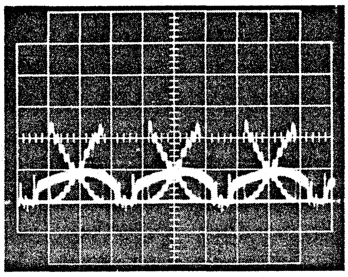
75-B TP1107 (Colour bar)
0.2V/20 μsec. cm



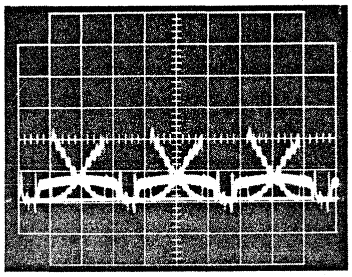
76-A TP1108
0.2V/20 μsec. cm



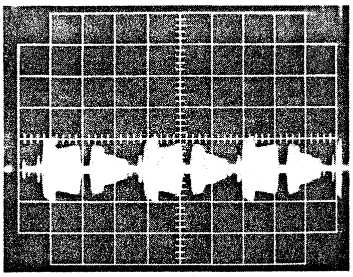
77-A TP1109
50 mV/20 μsec. cm



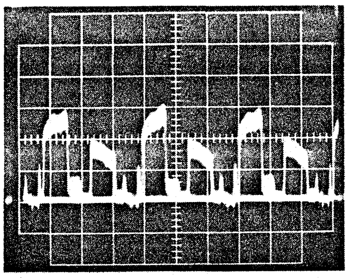
78-A TP110
50 mV/20 μsec. cm



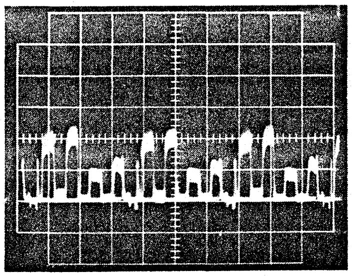
76-B TP1108 (Colour bar)
0.2V/20 μsec. cm



77-B TP1109 (Colour bar)
50 mV/20 μsec. cm

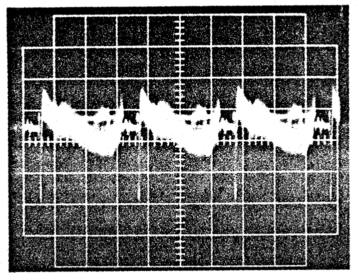


78-B TP1110 (Colour bar)
50 mV/20 μsec. cm

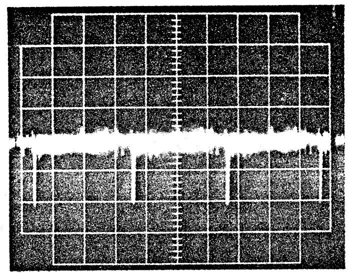


PROCESS WAVEFORMS

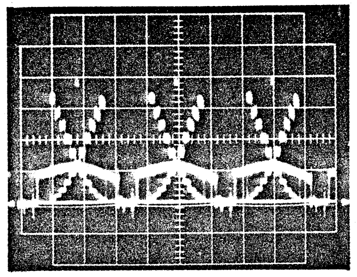
79-A TP1113
50 mV/20 μsec. cm



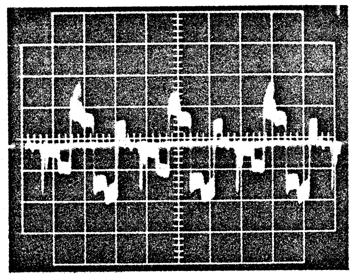
80-A TP1114
50 mV/20 μsec. cm



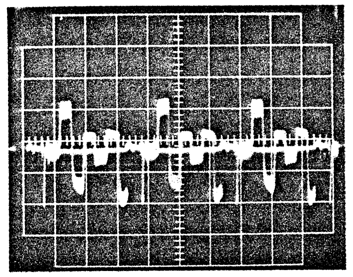
81-A TP116
0.1V/20 μsec. cm



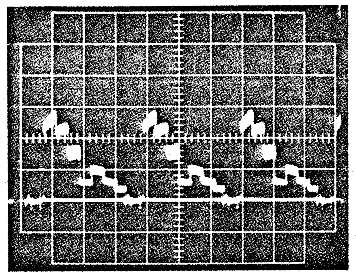
79-B TP1113 (Colour bar)
0.1V/20 μsec. cm



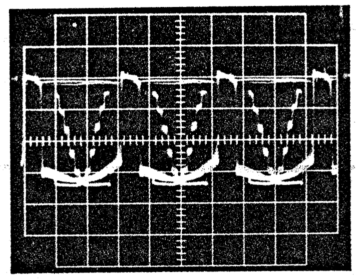
80-B TP1114 (Colour bar)
0.1V/20 μsec. cm



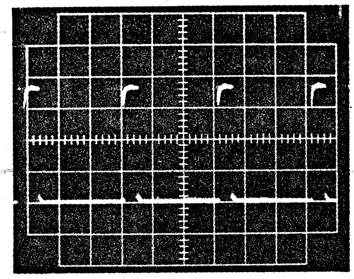
81-B TP1116 (Colour bar)
0.1V/20 μsec. cm



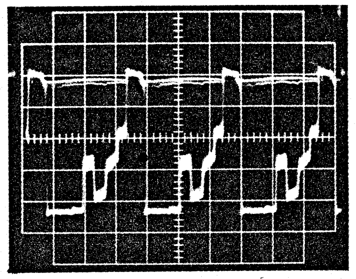
82-A TP1117
0.2V/20 μsec. cm



83-A TP1121
1V/20 μsec. cm



82-B TP1117 (Colour bar)
0.2V/20 μsec. cm



— MEMO —

PROCESS (VIDEO PROCESS) SCHEMATIC DIAGRAM

SCHEMATIC PAGE
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SERVO 219
CYL.–/CAPST. –MOTORS DRIVE 227
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LUMA/CHROMA 229
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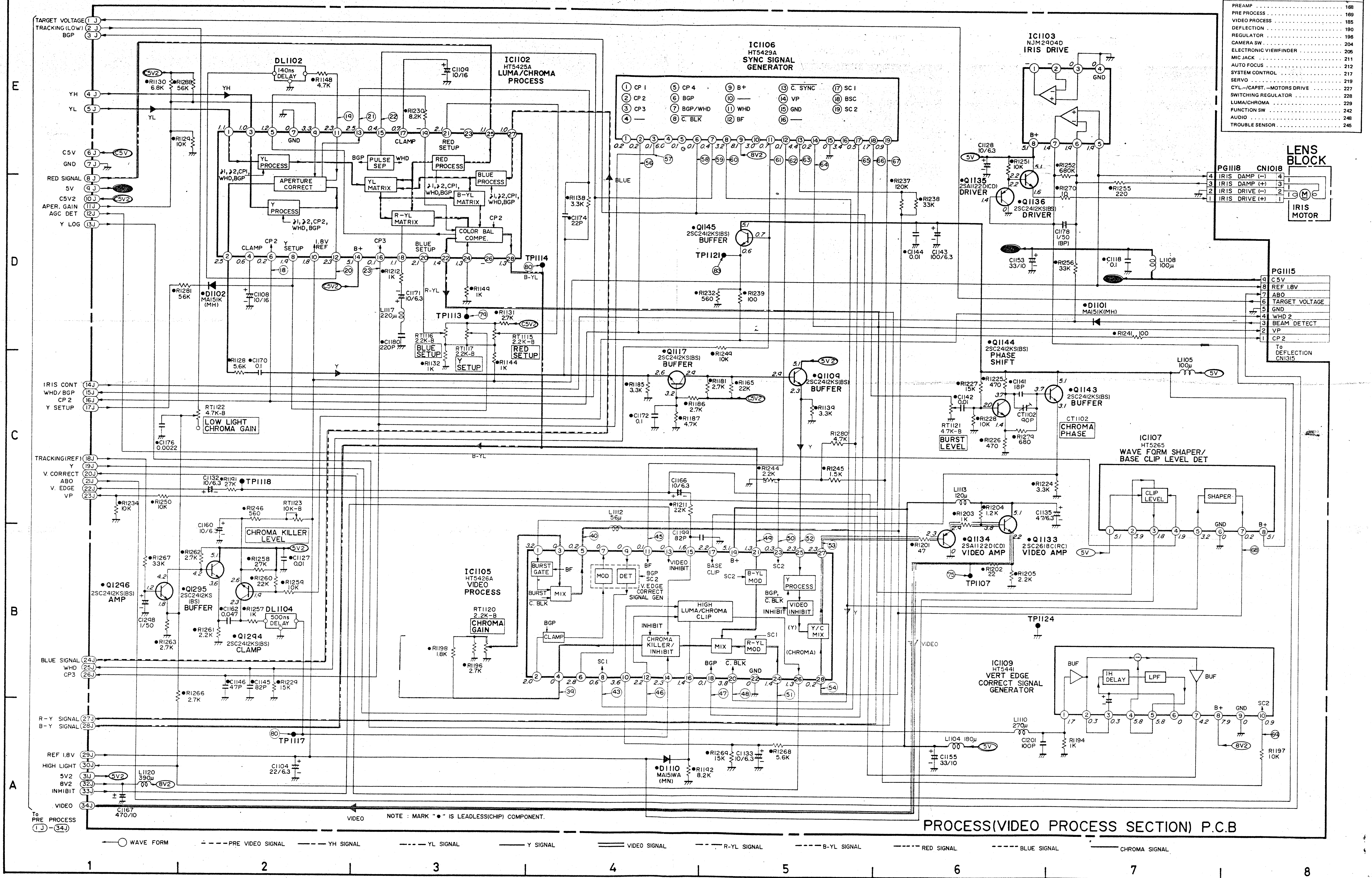
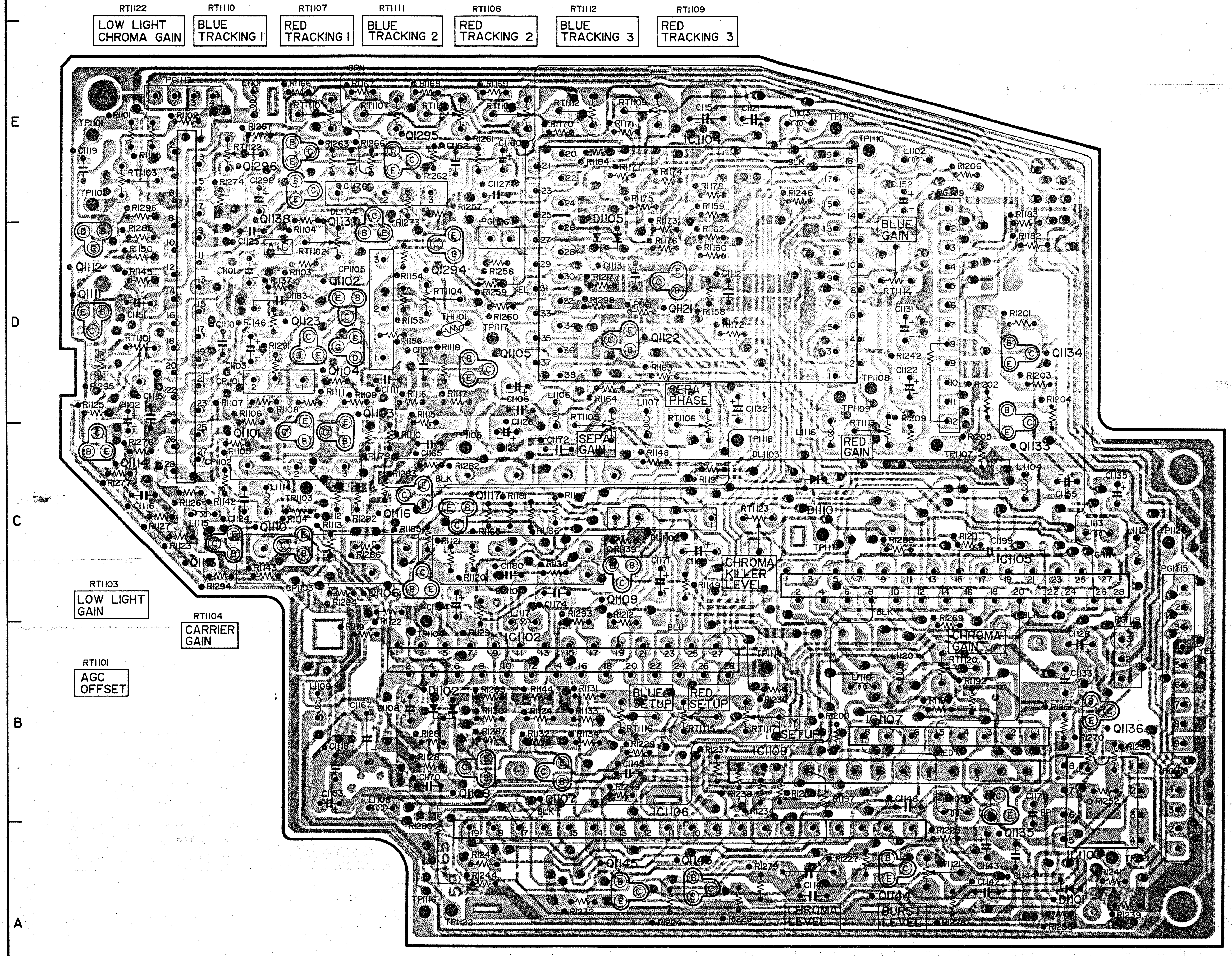


TARGET VOLTAGE 1J
TRACKING (LOW) 2J
BGP 3J
YH 4J
YL 5J
C5V 6J
GND 7J
RED SIGNAL 8J
5V 9J
C5V2 10J
APER. GAIN 11J
AGC DET 12J
Y LOG 13J
IRIS CONT 14J
WHD/BGP 15J
CP 2 16J
Y SETUP 17J
TRACKING(REF) 18J
Y 19J
V. CORRECT 20J
ABO 21J
V. EDGE 22J
VP 23J
BLUE SIGNAL 24J
WHD 25J
CP3 26J
R–Y SIGNAL 27J
B–Y SIGNAL 28J
REF 1.8V 29J
HIGH LIGHT 30J
5V2 31J
8V2 32J
INHIBIT 33J
VIDEO 34J
To PRE PROCESS 1J–34J
DL1102 140ns DELAY
IC1102 HT5425A LUMA/CHROMA PROCESS
YL PROCESS
APERTURE CORRECT
Y PROCESS
PULSE SEP
YL MATRIX
R–YL MATRIX
RED PROCESS
BLUE PROCESS
B–YL MATRIX
COLOR BAL COMPE.
CLAMP
RED SETUP
BLUE SETUP
TP1114
B-YL
D1102 MA151K (MH)
TP1113
RT1116 2.2K-B BLUE SETUP
RT1117 2.2K-B Y SETUP
RT1115 2.2K-B RED SETUP
RT1122 4.7K-B LOW LIGHT CHROMA GAIN
TP1118
RT1123 10K-B CHROMA KILLER LEVEL
Q1296 2SC2412KS(BS) AMP
Q1295 2SC2412KS (BS) BUFFER
Q1294 2SC2412KS(BS) CLAMP
DL1104 500ns DELAY
TP1117
IC1106 HT5429A SYNC SIGNAL GENERATOR
1 CP 1
2 CP 2
3 CP 3
4 —
5 CP 4
6 BGP
7 BGP/WHD
8 C. BLK
9 B+
10 —
11 WHD
12 BF
13 C. SYNC
14 VP
15 GND
16 —
17 SC 1
18 BSC
19 SC 2
Q1145 2SC2412K(BS) BUFFER
TP1121
Q1117 2SC2412KS(BS) BUFFER
Q1109 2SC2412KS(BS) BUFFER
IC1105 HT5426A VIDEO PROCESS
RT1120 2.2K-B CHROMA GAIN
BURST GATE
MOD
DET
MIX
CLAMP
HIGH LUMA/CHROMA CLIP
CHROMA KILLER/INHIBIT
R-YL MOD
B-YL MOD
Y PROCESS
VIDEO INHIBIT
Y/C MIX
D1110 MA151WA (MN)
IC1103 NJM2904D IRIS DRIVE
Q1135 2SA1122D(CD) DRIVER
Q1136 2SC2412KS(BS) DRIVER
LENS BLOCK
PG1118
CN1018
4 IRIS DAMP (–) 4
3 IRIS DAMP (+) 3
2 IRIS DRIVE (–) 2
1 IRIS DRIVE (+) 1
IRIS MOTOR
PG1115
9 C5V
8 REF 1.8V
7 ABO
6 TARGET VOLTAGE
5 GND
4 WHD 2
3 BEAM DETECT
2 VP
1 CP 2
To DEFLECTION CN1315
D1101 MA151K(MH)
Q1144 2SC2412KS(BS) PHASE SHIFT
Q1143 2SC2412KS(BS) BUFFER
RT1121 4.7K-B BURST LEVEL
CT1102 CHROMA PHASE
IC1107 HT5265 WAVE FORM SHAPER/BASE CLIP LEVEL DET
CLIP LEVEL
SHAPER
Q1134 2SA1122D(CD) VIDEO AMP
Q1133 2SC2618C(RC) VIDEO AMP
TP1107
TP1124
IC1109 HT5441 VERT EDGE CORRECT SIGNAL GENERATOR
BUF
1H DELAY
LPF
PROCESS(VIDEO PROCESS SECTION) P.C.B
WAVE FORM
PRE VIDEO SIGNAL
YH SIGNAL
YL SIGNAL
Y SIGNAL
VIDEO SIGNAL
R-YL SIGNAL
B-YL SIGNAL
RED SIGNAL
BLUE SIGNAL
CHROMA SIGNAL
A
B
C
D
E
1
2
3
4
5
6
7
8

NOTE : MARK "●" IS LEADLESS(CHIP) COMPONENT.

PROCESS CIRCUIT BOARD


RT1122 LOW LIGHT CHROMA GAIN
RT1110 BLUE TRACKING 1
RT1107 RED TRACKING 1
RT1111 BLUE TRACKING 2
RT1108 RED TRACKING 2
RT1112 BLUE TRACKING 3
RT1109 RED TRACKING 3
RT1103 LOW LIGHT GAIN
RT1104 CARRIER GAIN
RT1101 AGC OFFSET
BLUE GAIN
RED GAIN
SEPA PHASE
SEPA GAIN
CHROMA KILLER LEVEL
CHROMA GAIN
BLUE SETUP
RED SETUP
Y SETUP
CHROMA LEVEL
BURST LEVEL
IC1101
IC1102
IC1104
IC1105
IC1106
IC1107
IC1109
PG1109
PG1115
PG1117
PG1118
PG1119
E
D
C
B
A

PG1109	
1	AUTO WHITE BAL SW
2	COLOR SHADE RED
3	COLOR SHADE BLUE
4	WINDOW WEIGHT
5	DARK SHADE HORIZ.
6	DARK SHADE VERT.
7	C. STBY 8V
8	INHIBIT
9	GND
10	VIDEO
11	WHT BAL RESET
12	C. STBY 5V

To REGULATOR CN1509

PG1115	
1	CP 2
2	VP
3	BEAM DETECT
4	WHD 2
5	GND
6	TARGET VOLTAGE
7	ABO
8	REF 1.8V
9	C5V

To DEFLECTION CN1315

PG1117	
1	TARGET VOLTAGE
2	C. STBY 8V
3	PRE VIDEO
4	GND

To PRE AMP CN1017

PG1118	
4	IRIS DAMP (−)
3	IRIS DAMP (+)
2	IRIS DRIVE (−)
1	IRIS DRIVE (+)

To LENS BLOCK (IRIS MOTOR) CN1018

PG1119	
1	GAIN UP
2	GND
3	IRIS CONT

To CAMERA SWITCH CN1619

IC1101		
1	—	15
2	1.9	16
3	1.2	17
4	1.4	18
5	1.8	19
6	0	20
7	2.0	21
8	1.9	22
9	1.9	23
10	—	24
11	8.1	25
12	0.4	26
13	0.1	27
14	1.9	28

Q1108	
B	2.7
C	3.3
E	3.3

Q1105	
B	0.5
C	0
E	1.1

Q1113	
B	2.0
C	5.1
E	1.3

Q1134	
B	2.3
C	0
E	2.9

Q1294	
B	1.9
C	2.3
E	2.6

Q1103	
B	1.6
C	5.1
E	1.0

- ● Through hole
- ▨ Soldered Side
- ▨ Parts Side

NOTE : MARK "●" IS LEADLESS(CHIP) COMPONENT.

PROCESS P.C.B

1 2 3 4 5 6 7 8

IC1101

1	—	15	3.3
2	1.9	16	2.1
3	1.2	17	—
4	1.4	18	2.3
5	1.8	19	1.8
6	0	20	2.2
7	2.0	21	2.8
8	1.9	22	0
9	1.9	23	1.3
10	—	24	5.1
11	8.1	25	—
12	0.4	26	2.1
13	0.1	27	2.2
14	1.9	28	2.0

IC1102

1	1.1	15	0.4
2	2.5	16	0.1
3	1.0	17	0.7
4	0.6	18	1.1
5	1.2	19	—
6	0.2	20	2.1
7	0	21	2.1
8	1.9	22	1.4
9	3.3	23	—
10	1.8	24	1.3
11	2.3	25	1.1
12	2.3	26	—
13	2.5	27	1.0
14	5.1	28	1.3

IC1103

1	—
2	—
3	0
4	0
5	1.9
6	1.9
7	1.4
8	5.1

IC1104

1	1.1	20	0
2	2.3	21	0.1
3	1.9	22	1.9
4	2.8	23	1.9
5	1.3	24	1.9
6	1.1	25	1.9
7	—	26	1.9
8	—	27	5.1
9	0	28	1.3
10	0	29	—
11	1.4	30	2.2
12	1.8	31	2.0
13	0.3	32	1.8
14	0.4	33	1.9
15	0.1	34	1.9
16	2.9	35	5.0
17	0.4	36	1.9
18	1.0	37	3.1
19	1.9	38	—

IC1105

1	3.2	15	1.6
2	2.0	16	1.4
3	0	17	2.2
4	0	18	0.1
5	0.2	19	5.1
6	2.8	20	3.8
7	0	21	1.3
8	0.6	22	0
9	0	23	0.3
10	3.6	24	1.4
11	0.1	25	2.3
12	2.2	26	1.3
13	0	27	2.3
14	2.3	28	0.2

OR

IC1106

1	0.2
2	0.2
3	0.1
4	6.0
5	0.1
6	0.1
7	0.4
8	3.2
9	8.1
10	3.0
11	0.7
12	0.1
13	4.4
14	0.2
15	0
16	-3.4
17	0.5
18	1.7
19	0.9

ON

IC1107

1	5.1
2	3.9
3	1.8
4	1.9
5	3.2
6	0
7	0.2
8	5.1

IC1109

1	1.7
2	0.3
3	0.3
4	5.8
5	5.8
6	0
7	4.2
8	7.9
9	0
10	0.9

Q1108

B	2.7
C	3.3
E	3.3

Q1107

B	3.2
C	2.9
E	2.6

Q1136

B	2.2
C	5.1
E	1.6

Q1101

B	2.2
C	4.5
E	1.6

Q1105

B	0.5
C	0
E	1.1

Q1106

B	0.4
C	0
E	1.0

Q1107

B	3.3
C	0
E	3.3

Q1109

B	2.9
C	5.1
E	2.3

Q1113

B	2.0
C	5.1
E	1.3

Q1114

B	1.4
C	0
E	2.1

Q1116

B	1.1
C	2.9
E	0.5

Q1121

B	1.9
C	4.9
E	1.2

Q1110

B	2.0
C	0
E	2.7

Q1111

B	1.2
C	0
E	1.8

Q1112

G	0.2
D	1.9
S	2.1

R)

Q1134

B	2.3
C	0
E	2.9

Q1135

B	1.4
C	0
E	2.2

Q1137

B	0.6
C	0
E	1.3

Q1138

B	3.9
C	0
E	2.3

Q1122

B	3.7
C	5.1
E	3.1

Q1123

B	1.7
C	0
E	2.3

Q1133

B	3.8
C	5.1
E	2.2

Q1294

B	1.9
C	2.3
E	2.6

Q1295

B	4.2
C	5.1
E	3.6

Q1296

B	1.2
C	4.2
E	1.8

Q1102

B	4.5
C	1.7
E	5.1

Q1143

B	3.7
C	5.1
E	3.1

Q1144

B	2.0
C	3.7
E	1.4

Q1145

B	0.7
C	5.1
E	0.6

Q1103

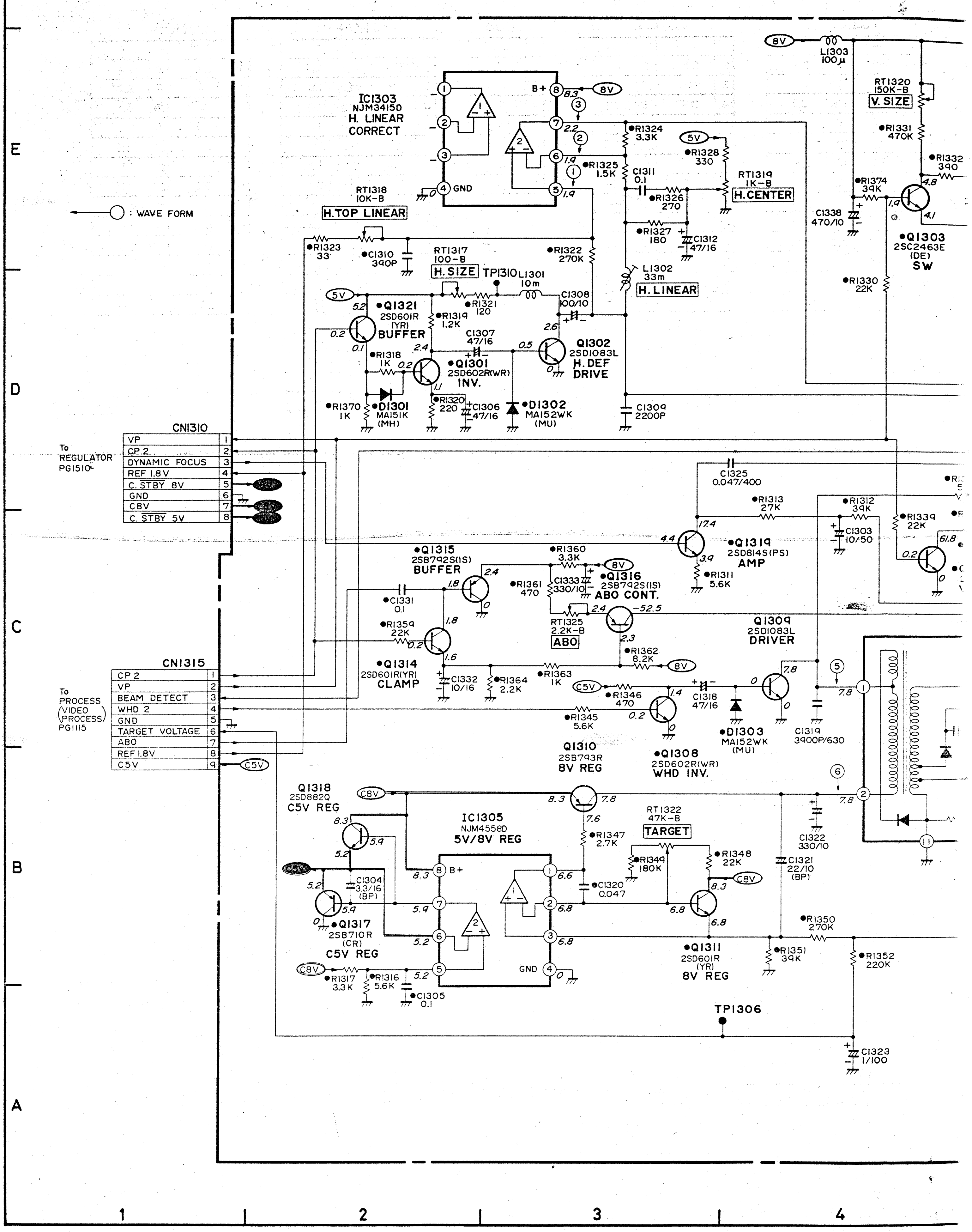
B	1.6
C	5.1
E	1.0

Q1104

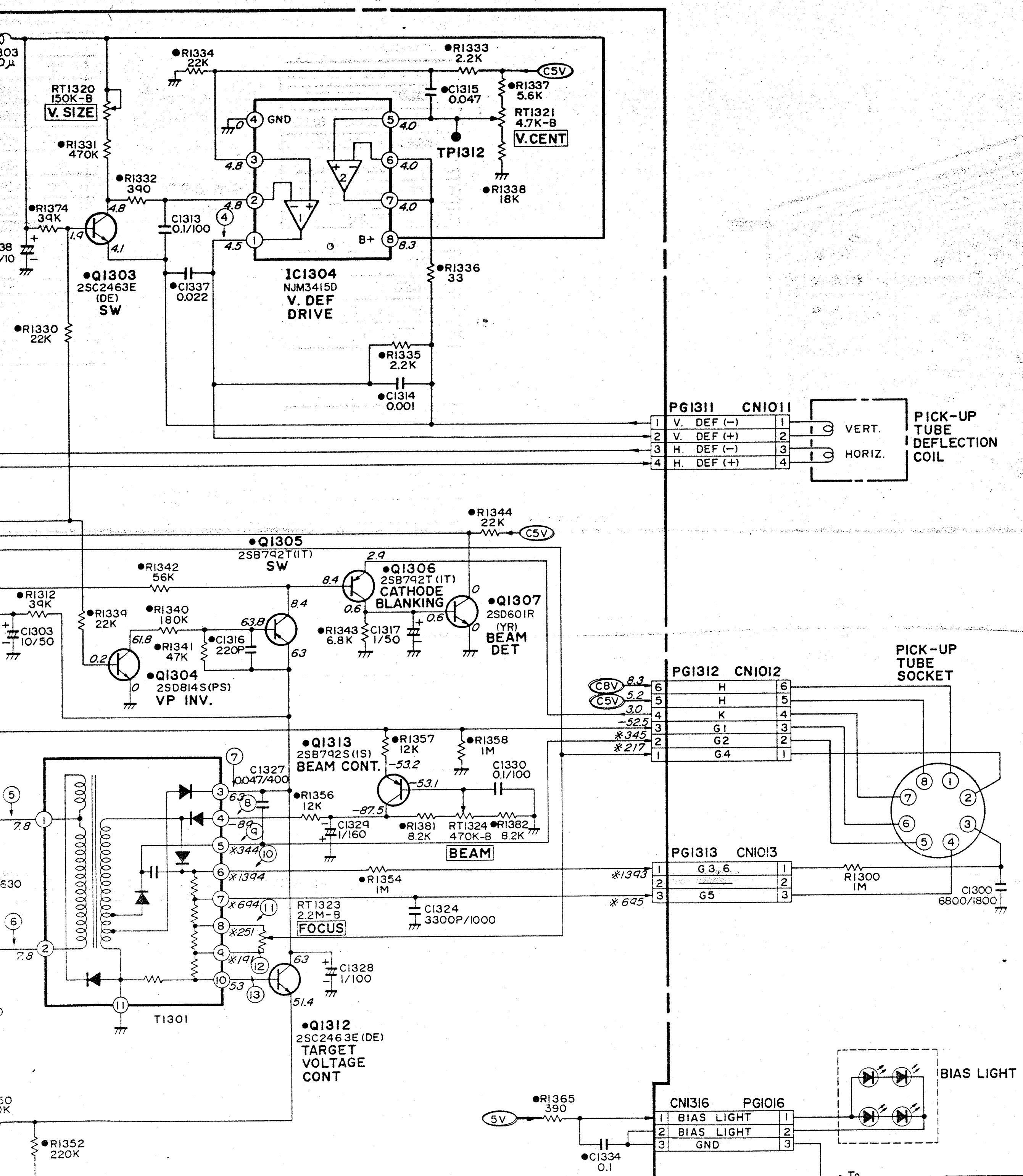
G	2.2
D	1.6
S	1.7

9 10 11 12

DEFLECTION SCHEMATIC DIAGRAM



: WAVE FORM
IC1303
NJM3415D
H. LINEAR CORRECT
B+
GND
RT1318
10K-B
H.TOP LINEAR
R1323
33
C1310
390P
RT1317
100-B
H. SIZE
TP1310
L1301
10m
R1322
270K
R1324
3.3K
R1325
1.5K
C1311
0.1
R1326
270
R1327
180
C1312
47/16
R1328
330
RT1319
1K-B
H.CENTER
L1302
33m
H. LINEAR
C1308
100/10
Q1321
2SD601R
(YR)
BUFFER
R1319
1.2K
R1321
120
C1307
47/16
Q1302
2SD1083L
H. DEF DRIVE
R1318
1K
Q1301
2SD602R(WR)
INV.
R1370
1K
D1301
MA151K
(MH)
R1320
220
C1306
47/16
D1302
MA152WK
(MU)
C1309
2200P
L1303
100μ
RT1320
150K-B
V. SIZE
R1331
470K
R1332
390
R1374
39K
C1338
470/10
Q1303
2SC2463E
(DE)
SW
R1330
22K
CN1310
To REGULATOR PG1510
VP
CP 2
DYNAMIC FOCUS
REF 1.8V
C. STBY 8V
GND
C8V
C. STBY 5V
C1325
0.047/400
R1313
27K
R1312
39K
C1303
10/50
R1339
22K
Q1319
2SD814S(PS)
AMP
R1311
5.6K
Q1315
2SB792S(IS)
BUFFER
R1360
3.3K
R1361
470
C1333
330/10
Q1316
2SB792S(IS)
ABO CONT.
C1331
0.1
RT1325
2.2K-B
ABO
R1359
22K
Q1314
2SD601R(YR)
CLAMP
R1362
8.2K
Q1309
2SD1083L
DRIVER
C1332
10/16
R1364
2.2K
R1363
1K
R1346
470
R1345
5.6K
C1318
47/16
D1303
MA152WK
(MU)
C1319
3900P/630
Q1310
2SB793R
8V REG
Q1308
2SD602R(WR)
WHD INV.
CN1315
To PROCESS (VIDEO PROCESS) PG1115
CP 2
VP
BEAM DETECT
WHD 2
GND
TARGET VOLTAGE
ABO
REF 1.8V
C5V
Q1318
2SD882Q
C5V REG
IC1305
NJM4558D
5V/8V REG
R1347
2.7K
RT1322
47K-B
TARGET
R1349
180K
R1348
22K
C1322
330/10
C1321
22/10
(BP)
C1304
3.3/16
(BP)
C1320
0.047
Q1317
2SB710R
(CR)
C5V REG
Q1311
2SD601R
(YR)
8V REG
R1350
270K
R1351
39K
R1352
220K
R1317
3.3K
R1316
5.6K
C1305
0.1
TP1306
C1323
1/100
8V
5V
C5V
C8V
E
D
C
B
A
1
2
3
4


RT1320 150K-B V. SIZE
●R1334 22K
●R1333 2.2K
C5V
●C1315 0.047
●R1337 5.6K
RT1321 4.7K-B V.CENT
TP1312
●R1338 18K
●R1331 470K
●R1332 390
●R1374 39K
●C1313 0.1/100
GND
B+
IC1304 NJM3415D V. DEF DRIVE
●R1336 33
●Q1303 2SC2463E (DE) SW
●C1337 0.022
●R1330 22K
●R1335 2.2K
●C1314 0.001
PG1311 CN1011
V. DEF (−)
V. DEF (+)
H. DEF (−)
H. DEF (+)
VERT.
HORIZ.
PICK-UP TUBE DEFLECTION COIL
●R1344 22K
●Q1305 2SB792T(IT) SW
●R1342 56K
●Q1306 2SB792T (IT) CATHODE BLANKING
●Q1307 2SD601R (YR) BEAM DET
●R1312 39K
●R1339 22K
●R1340 180K
●C1303 10/50
●C1316 220P
●R1341 47K
●R1343 6.8K
C1317 1/50
●Q1304 2SD814S(PS) VP INV.
PG1312 CN1012
PICK-UP TUBE SOCKET
C8V
H
K
G1
G2
G4
●Q1313 2SB792S(IS) BEAM CONT.
●R1357 12K
●R1358 1M
C1327 0.047/400
C1330 0.1/100
●R1356 12K
C1329 1/160
●R1381 8.2K
RT1324 470K-8 BEAM
●R1382 8.2K
PG1313 CN1013
G3, 6
G5
●R1354 1M
R1300 1M
C1300 6800/1800
RT1323 2.2M-B FOCUS
C1324 3300P/1000
C1328 1/100
T1301
●Q1312 2SC2463E (DE) TARGET VOLTAGE CONT
5V
●R1365 390
CN1316 PG1016
BIAS LIGHT
BIAS LIGHT
GND
BIAS LIGHT
●C1334 0.1
To CHASSIS
●R1352 220K

NOTE : MARK "●" IS LEADLESS (CHIP) COMPONENT.
VOLTAGES MARKED "※" ARE MEASURED USING HIGH VOLTAGE DVM.

●C1323 1/100

DEFLECTION P.C.B

4 5 6 7 8

SCHEMATIC	PAGE
PREAMP	168
PRE PROCESS	169
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REGULATOR	196
CAMERA SW	204
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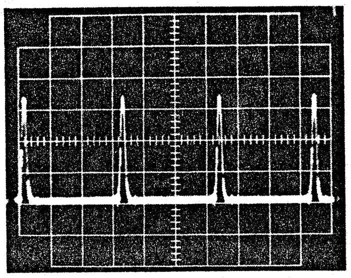
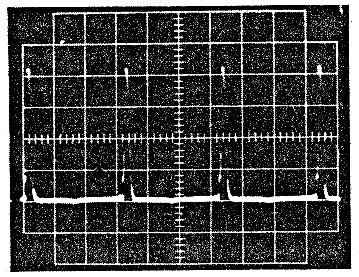
AUTO FOCUS	212
SYSTEM CONTROL	217
SERVO	219
CYL.–/CAPST. –MOTORS DRIVE	227
SWITCHING REGULATOR	228
LUMA/CHROMA	229
FUNCTION SW	242
AUDIO	248
TROUBLE SENSOR	245

DEFLECTION WAVEFORMS

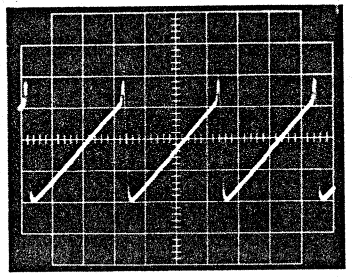
1-A IC1303-5
0.1V/20μsec.cm



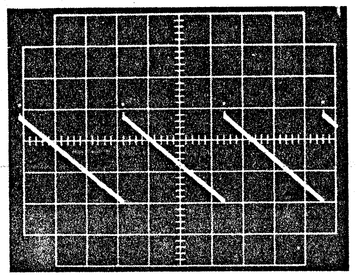
2-A IC1303-6
0.1V/20μsec.cm



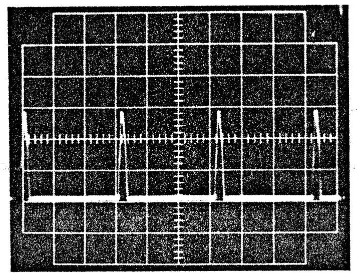
3-A IC1303-7
0.5V/20μsec.cm



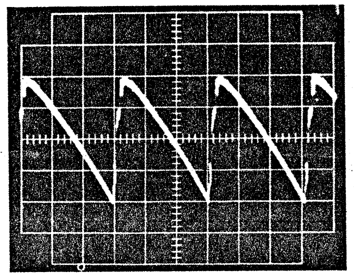
4-A IC1304-1
2V/5msec.cm



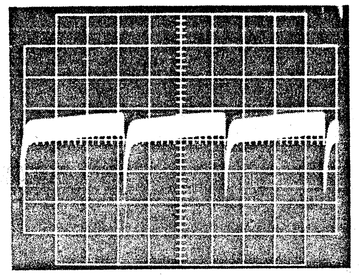
5-A T1301-1
50V/20μsec.cm



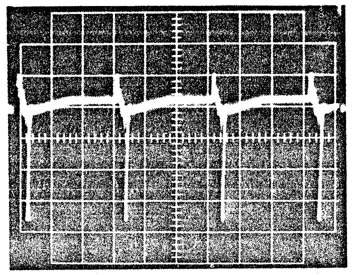
6-A T1301-2
50mV/20μsec.cm



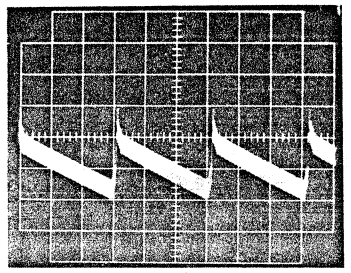
7-A T1301-3
0.1V/5msec.cm



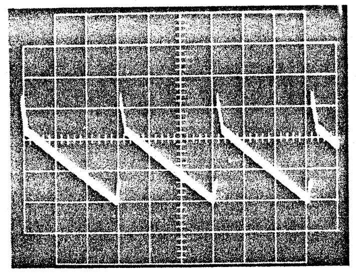
8-A T1301-4
20V/20μsec.cm



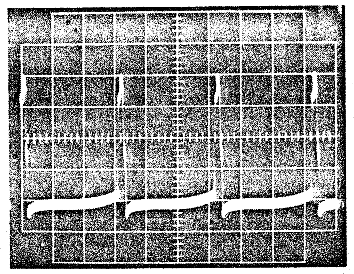
9-A T1301-5
0.2V/20μsec.cm



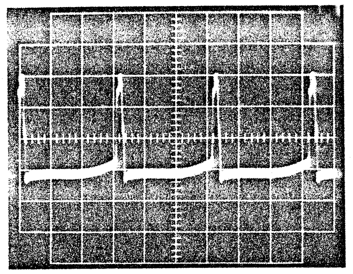
10-A T1301-6
2V/20μsec.cm



11-A T1301-8
2V/20μsec.cm

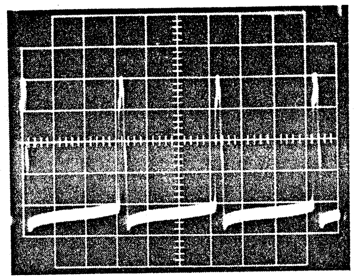


12-A T1301-9
2V/20μsec.cm



DEFLECTION WAVEFORMS

13-A T1301-10
1V/20μsec.cm



DEFLECTION CIRCUIT BOARD

Q1301

B	0.2
C	2.4
E	1.1

Q1302

B	0.5
C	2.6
E	0

Q1303

B	1.9
C	4.8
E	4.1

Q1304

B	0.2
C	61.8
E	0

Q1308

B	0.2
C	1.4
E	0

Q1309

B	0
C	7.8
E	0

Q1310

B	7.6
C	7.8
E	8.3

Q1311

B	6.8
C	8.3
E	6.8

Q1315

B	1.8
C	0
E	2.4

Q1316

B	2.3
C	-52.5
E	2.4

Q1319

B	4.4
C	17.4
E	3.9

Q1321

B	0.2
C	5.2
E	0.1

Q1318

B	5.9
C	8.3
E	5.2

Q1305

B	63.8
C	8.4
E	6.3

Q1306

B	8.4
C	0.6
E	2.9

Q1307

B	0.6
C	0
E	0

Q1317

B	5.9
C	0
E	5.2

Q1312

B	5.3
C	63
E	51.4

Q1313

B	-53.1
C	-87.5
E	-53.2

Q1314

B	0.2
C	1.8
E	1.6

IC1304

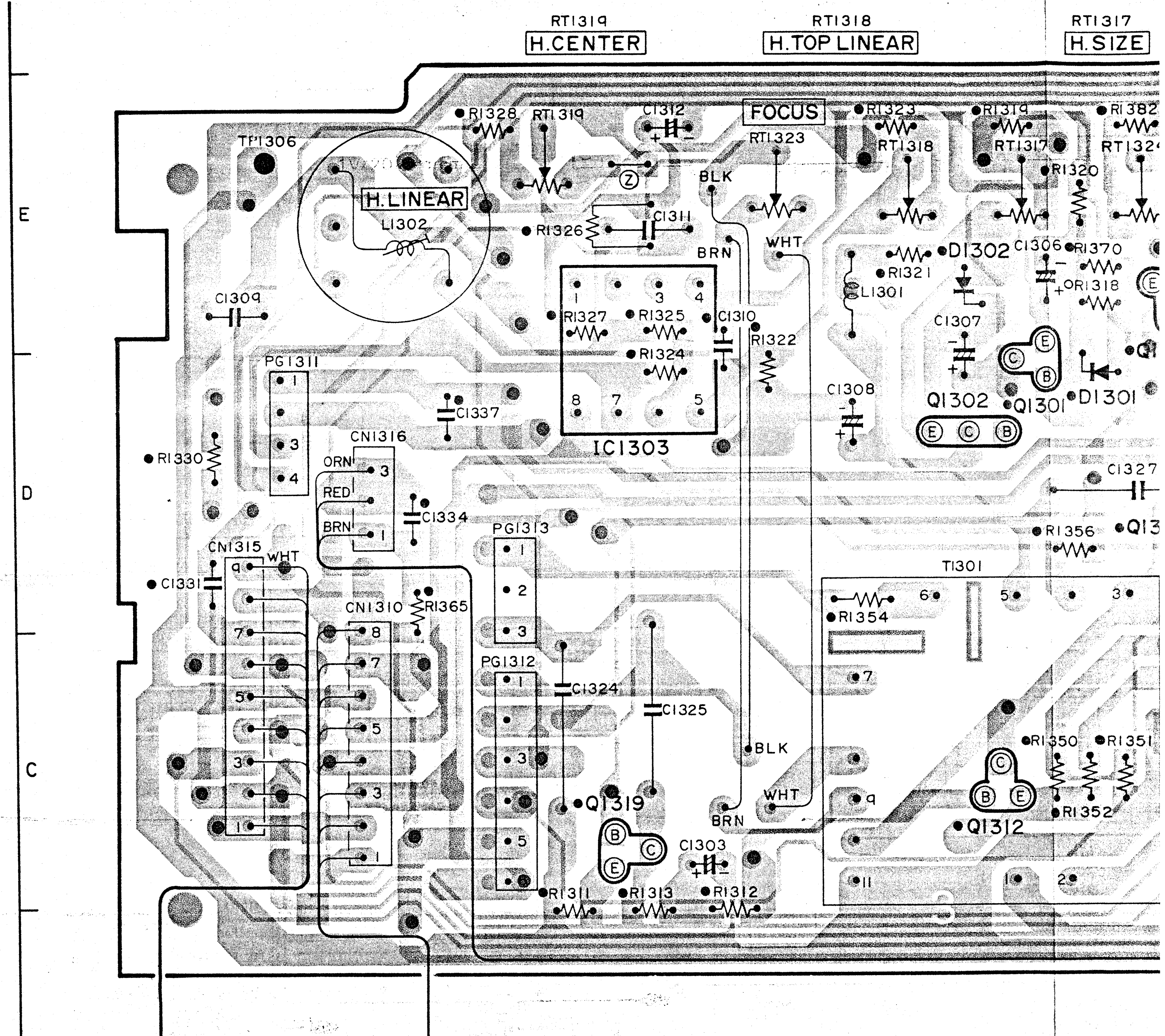
1	2	3	4
4.5	4.8	4.8	0
8	7	6	5
8.3	4.0	4.0	4.0

IC1303

1	2	3	4
-	-	-	0
8	7	6	5
8.3	2.2	1.9	1.9

IC1305

5	6	7	8
5.2	5.2	5.9	8.3
4	3	2	1
0	6.8	6.8	6.6


RT1319
H.CENTER
RT1318
H.TOP LINEAR
RT1317
H.SIZE
FOCUS
H.LINEAR
L1302
TP1306
R1328
RT1319
C1312
RT1323
R1323
RT1318
R1319
RT1317
R1320
R1326
C1311
BLK
BRN
WHT
D1302
C1306
R1370
R1321
R1318
L1301
C1309
R1327
R1325
C1310
R1324
R1322
C1307
Q1302
Q1301
D1301
C1308
IC1303
PG1311
C1337
CN1316
ORN
RED
BRN
C1334
R1330
CN1315
WHT
PG1313
R1356
C1327
C1331
CN1310
R1365
T1301
R1354
PG1312
C1324
C1325
R1350
R1351
R1352
Q1319
Q1312
C1303
R1311
R1313
R1312
E
D
C
B
A

CN1315

WHT	9	C5V
GRY	8	REF 1.8V
VLT	7	ABO
BLU	6	TARGET VOLTAGE
PNK	5	GND
YEL	4	WHD
ORN	3	BEAM DETECT
RED	2	VP
BRN	1	CP2

To
PROCESS
(VIDEO PROCESS)
PG1115

CN1310

GRY	8	C. $\overline{\text{STBY}}$ 5V
VLT	7	C8V
BLU	6	GND
PNK	5	C. $\overline{\text{STBY}}$ 8V
YEL	4	REF 1.8V
ORN	3	DYNAMIC FOCUS
RED	2	CP2
BRN	1	VP

To
REGULATOR
PG1510

PG1311

1	V. DEF(−)
2	V. DEF(+)
3	H. DEF(−)
4	H. DEF(+)

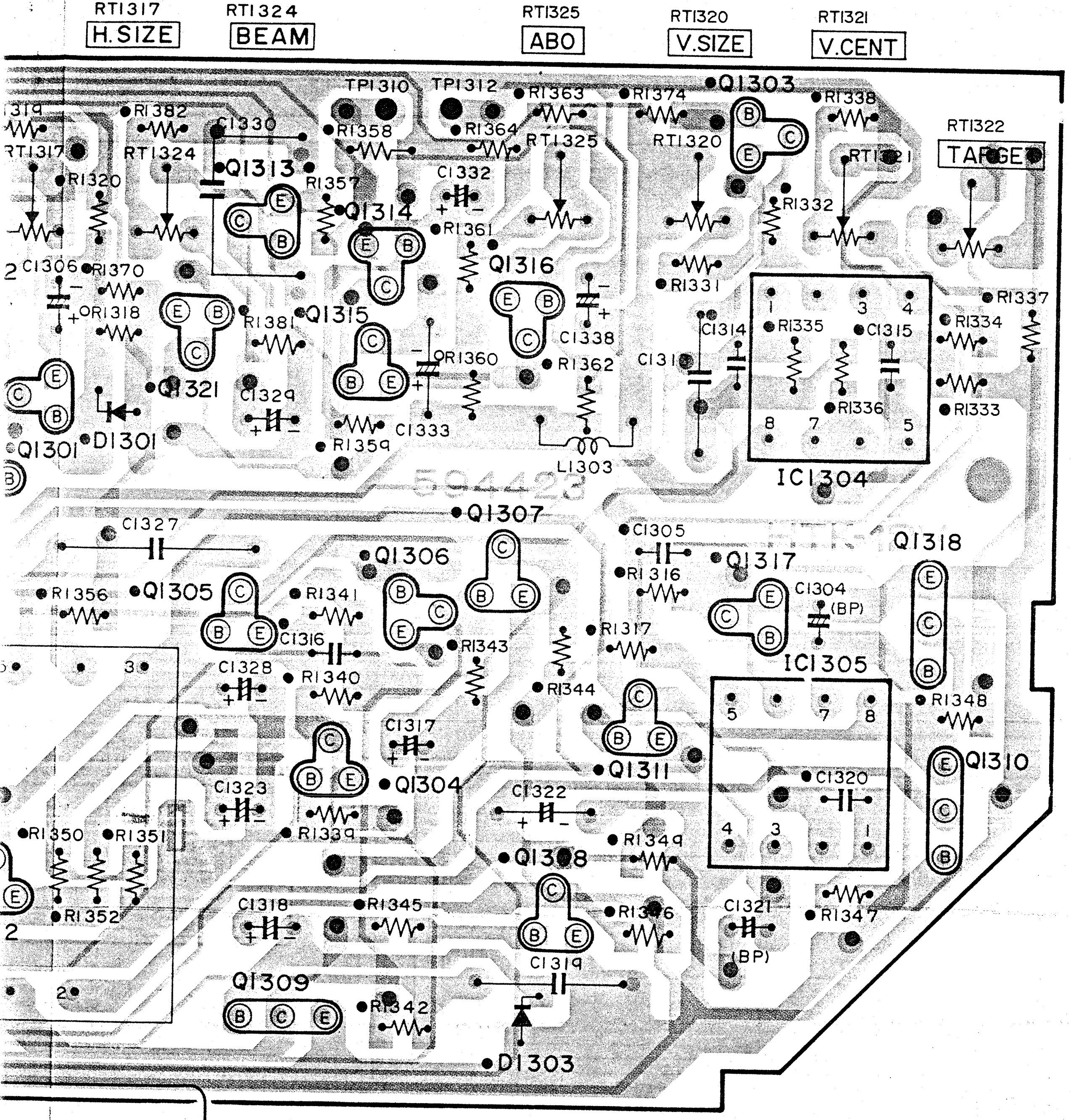
To
PICK-UP
TUBE
DEFLECTION
COIL
CN1011

PG1312

1	G4	2
2	G2	5
3	G1	6
4	K	7
5	H	8
6	H	1

To
PICK-UP
TUBE
SOCKET
VIA
CN1012

1 2 3 4


RT1317
H.SIZE
RT1324
BEAM
RT1325
ABO
RT1320
V.SIZE
RT1321
V.CENT
RT1322
TARGET
TP1310
TP1312
R1363
R1374
Q1303
R1338
R1382
C1330
R1358
R1364
RT1325
RT1320
RT1321
RT1317
RT1324
Q1313
R1357
C1332
R1320
Q1314
R1361
R1332
Q1316
R1331
C1306
R1370
R1337
R1318
R1381
Q1315
C1338
C1314
R1335
C1315
R1334
R1360
R1362
C1313
Q1321
C1329
C1333
R1336
R1333
Q1301
D1301
R1359
L1303
IC1304
Q1307
C1327
C1305
Q1318
Q1306
R1316
Q1317
R1356
Q1305
R1341
C1304
(BP)
C1316
R1343
R1317
IC1305
C1328
R1340
R1344
R1348
C1317
Q1311
Q1310
C1323
Q1304
C1322
C1320
R1339
R1350
R1351
R1349
Q1308
R1352
C1318
R1345
R1346
C1321
R1347
(BP)
C1319
Q1309
R1342
D1303
B
C
E

DEFLECTION P.C.B

312

	2
	5
	6
	7
	8
	1

K-UP
BE
KET

012

PG1313

1	G3.6	3
2	——	—
3	G5	4

To
PICK-UP
TUBE
SOCKET
VIA
CN1013

CN1316

ORN	3	GND	3
RED	2	BIAS LIGHT	2
BRN	1	BIAS LIGHT	1

To
BIAS LIGHT
PG1016

▨ Soldered Side

▨ Parts Side

● Through hole

Q1317

B	5.9
C	0
E	5.2

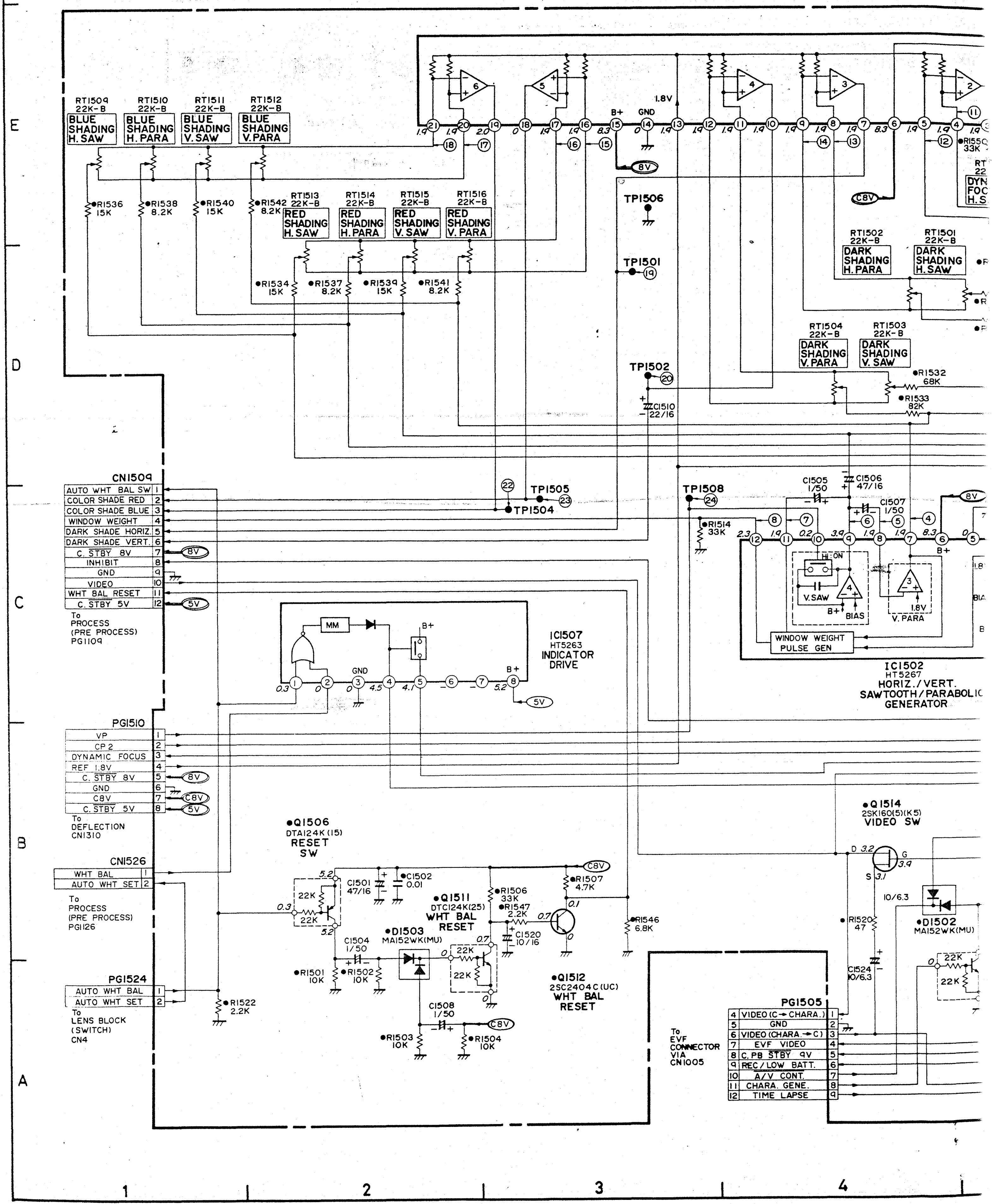
Q1318

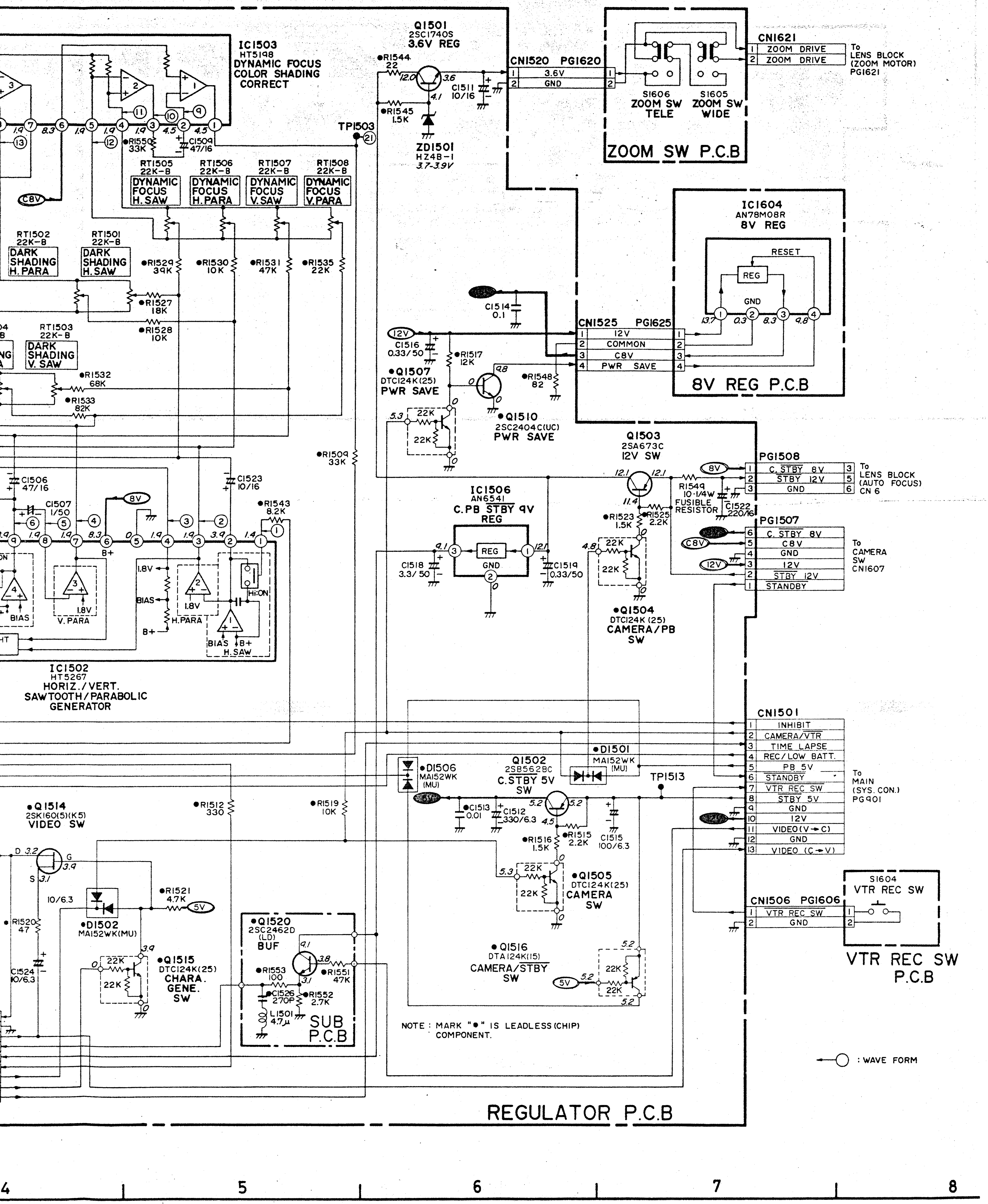
B	5.9
C	8.3
E	5.2

※ NOTE : MARK "Ⓩ" IS LEADLESS JUMPER.
MARK "●" IS LEADLESS(CHIP) COMPONENT.

5 6 7 8

REGULATOR SCHEMATIC DIAGRAM

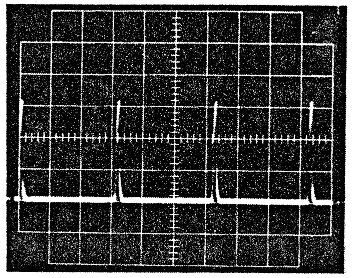

RT1509 22K-B BLUE SHADING H.SAW
RT1510 22K-B BLUE SHADING H.PARA
RT1511 22K-B BLUE SHADING V.SAW
RT1512 22K-B BLUE SHADING V.PARA
R1536 15K
R1538 8.2K
R1540 15K
R1542 8.2K
RT1513 22K-B RED SHADING H.SAW
RT1514 22K-B RED SHADING H.PARA
RT1515 22K-B RED SHADING V.SAW
RT1516 22K-B RED SHADING V.PARA
R1534 15K
R1537 8.2K
R1539 15K
R1541 8.2K
1.8V
B+
GND
8V
C8V
TP1506
TP1501
TP1502
C1510 22/16
RT1502 22K-B DARK SHADING H.PARA
RT1501 22K-B DARK SHADING H.SAW
RT1504 22K-B DARK SHADING V.PARA
RT1503 22K-B DARK SHADING V.SAW
R1532 68K
R1533 82K
R1550 33K
DYN FOC H.S
CN1509
AUTO WHT BAL SW 1
COLOR SHADE RED 2
COLOR SHADE BLUE 3
WINDOW WEIGHT 4
DARK SHADE HORIZ. 5
DARK SHADE VERT. 6
C. STBY 8V 7
INHIBIT 8
GND 9
VIDEO 10
WHT BAL RESET 11
C. STBY 5V 12
To PROCESS (PRE PROCESS) PG1109
TP1505
TP1504
TP1508
R1514 33K
C1505 1/50
C1506 47/16
C1507 1/50
HI ON
V.SAW
BIAS
V.PARA
WINDOW WEIGHT PULSE GEN
IC1502 HT5267 HORIZ./VERT. SAWTOOTH/PARABOLIC GENERATOR
MM
IC1507 HT5263 INDICATOR DRIVE
5V
PG1510
VP 1
CP 2 2
DYNAMIC FOCUS 3
REF 1.8V 4
C. STBY 8V 5
GND 6
C8V 7
C. STBY 5V 8
To DEFLECTION CN1310
CN1526
WHT BAL 1
AUTO WHT SET 2
To PROCESS (PRE PROCESS) PG1126
PG1524
AUTO WHT BAL 1
AUTO WHT SET 2
To LENS BLOCK (SWITCH) CN4
R1522 2.2K
Q1506 DTA124K(15) RESET SW
C1501 47/16
C1502 0.01
R1501 10K
R1502 10K
C1504 1/50
D1503 MA152WK(MU)
Q1511 DTC124K(25) WHT BAL RESET
C1508 1/50
R1503 10K
R1504 10K
R1506 33K
R1547 2.2K
C1520 10/16
R1507 4.7K
Q1512 2SC2404C(UC) WHT BAL RESET
R1546 6.8K
Q1514 2SK160(5)(K5) VIDEO SW
D 3.2
G 3.9
S 3.1
R1520 47
C1524 10/6.3
D1502 MA152WK(MU)
To EVF CONNECTOR VIA CN1005
PG1505
4 VIDEO (C→CHARA.) 1
5 GND 2
6 VIDEO (CHARA.→C) 3
7 EVF VIDEO 4
8 C.PB STBY 9V 5
9 REC/LOW BATT. 6
10 A/V CONT. 7
11 CHARA. GENE. 8
12 TIME LAPSE 9
E
D
C
B
A
1
2
3
4



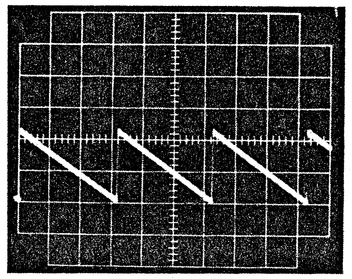
IC1503
HT5198
DYNAMIC FOCUS
COLOR SHADING
CORRECT
Q1501
2SC1740S
3.6V REG
R1544 22
R1545 1.5K
ZD1501
HZ4B-1
3.7-3.9V
C1511 10/16
TP1503
CN1520 PG1620
3.6V
GND
CN1621
ZOOM DRIVE
ZOOM DRIVE
To LENS BLOCK (ZOOM MOTOR) PG1621
S1606 ZOOM SW TELE
S1605 ZOOM SW WIDE
ZOOM SW P.C.B
RT1505 22K-B DYNAMIC FOCUS H.SAW
RT1506 22K-B DYNAMIC FOCUS H.PARA
RT1507 22K-B DYNAMIC FOCUS V.SAW
RT1508 22K-B DYNAMIC FOCUS V.PARA
R1550 33K
C1509 47/16
C8V
RT1502 22K-B DARK SHADING H.PARA
RT1501 22K-B DARK SHADING H.SAW
R1529 39K
R1530 10K
R1531 47K
R1535 22K
R1527 18K
R1528 10K
RT1503 22K-B DARK SHADING V.SAW
R1532 68K
R1533 82K
IC1604
AN78M08R
8V REG
RESET
REG
GND
8V REG P.C.B
C1514 0.1
CN1525 PG1625
12V
COMMON
C8V
PWR SAVE
C1516 0.33/50
R1517 12K
Q1507 DTC124K(25) PWR SAVE
R1548 82
Q1510 2SC2404C(UC) PWR SAVE
R1509 33K
Q1503 2SA673C 12V SW
R1549 10 1/4W FUSIBLE RESISTOR
C1522 220/16
PG1508
C. STBY 8V
STBY 12V
GND
To LENS BLOCK (AUTO FOCUS) CN 6
IC1506
AN6541
C.PB STBY 9V REG
C1518 3.3/50
C1519 0.33/50
R1523 1.5K
R1525 2.2K
Q1504 DTC124K(25) CAMERA/PB SW
PG1507
C. STBY 8V
C8V
GND
12V
STBY 12V
STANDBY
To CAMERA SW CN1607
C1506 47/16
C1507 1/50
C1523 10/16
R1543 8.2K
V.PARA
BIAS
H.PARA
H.SAW
Hi:ON
IC1502
HT5267
HORIZ./VERT.
SAWTOOTH/PARABOLIC
GENERATOR
CN1501
INHIBIT
CAMERA/VTR
TIME LAPSE
REC/LOW BATT.
PB 5V
STANDBY
VTR REC SW
STBY 5V
GND
12V
VIDEO(V→C)
GND
VIDEO (C→V)
To MAIN (SYS. CON.) PG401
D1506 MA152WK (MU)
Q1502 2SB562BC C.STBY 5V SW
D1501 MA152WK (MU)
TP1513
C1513 0.01
C1512 330/6.3
R1516 1.5K
R1515 2.2K
C1515 100/6.3
Q1505 DTC124K(25) CAMERA SW
Q1514 2SK160(5)(K5) VIDEO SW
R1512 330
R1519 10K
R1521 4.7K
D1502 MA152WK(MU)
R1520 47
C1524 10/6.3
Q1515 DTC124K(25) CHARA. GENE. SW
Q1520 2SC2462D (LD) BUF
R1553 100
C1526 270P
L1501 4.7μ
R1551 47K
R1552 2.7K
SUB P.C.B
Q1516 DTA124K(15) CAMERA/STBY SW
S1604 VTR REC SW
CN1506 PG1606
VTR REC SW
GND
VTR REC SW P.C.B
NOTE : MARK "●" IS LEADLESS (CHIP) COMPONENT.
: WAVE FORM
REGULATOR P.C.B
4
5
6
7
8

REGULATOR WAVEFORMS

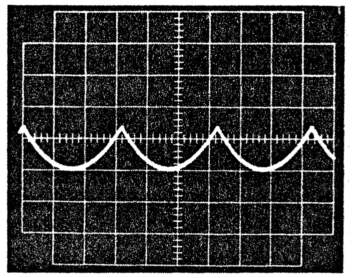
1-A IC1502-1
1V/20μsec.cm



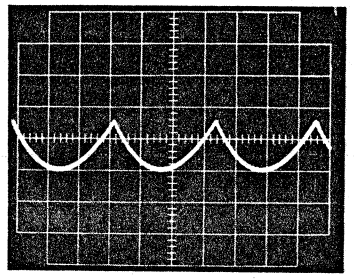
2-A IC1502-2
0.5V/20μsec.cm



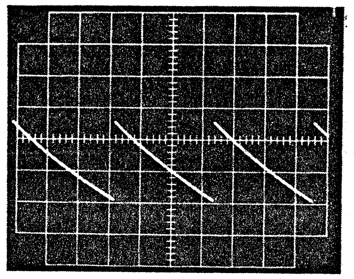
3-A IC1502-3
0.5V/20μsec.cm



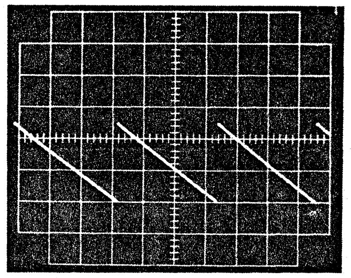
4-A IC1502-7
0.5V/5msec.cm



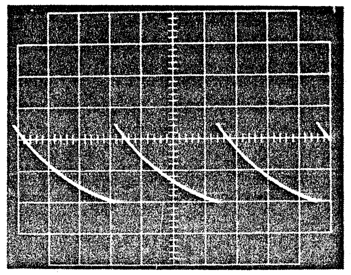
5-A IC1502-8
0.5V/5msec.cm



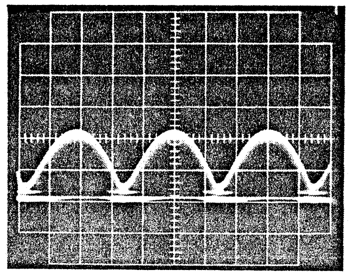
6-A IC1502-9
0.5V/5msec.cm



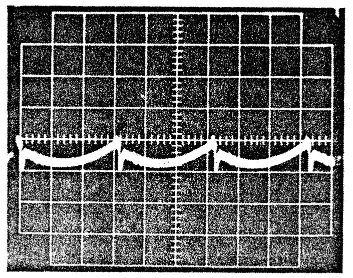
7-A IC1502-11
0.5V/5msec.cm



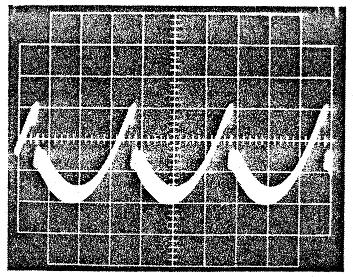
8-A IC1502-12
2V/20μsec.cm



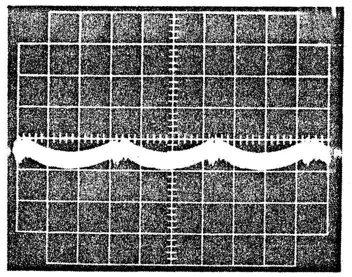
9-A IC1503-2
50mV/20μsec.cm



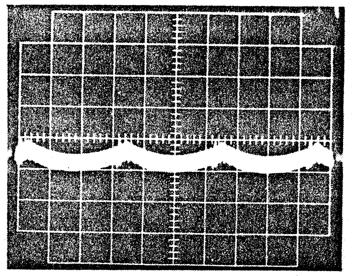
10-A IC1503-3
50mV/20μsec.cm



11-A IC1503-4
50mV/20μsec.cm

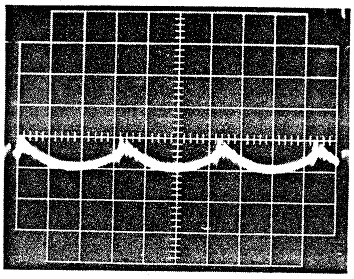


12-A IC1503-5
50mV/20μsec.cm

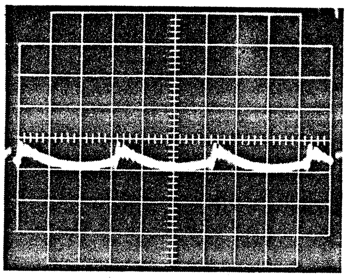


REGULATOR WAVEFORMS

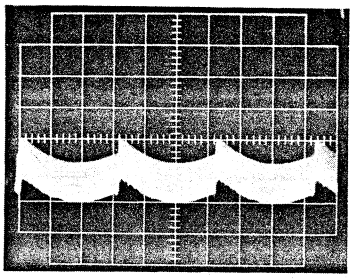
13-A IC1503-8
50mV/20μsec.cm



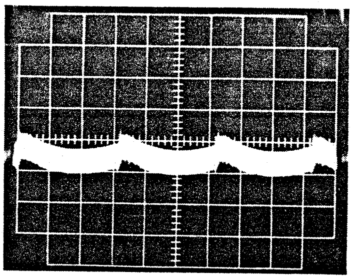
14-A IC1503-9
50mV/5msec.cm



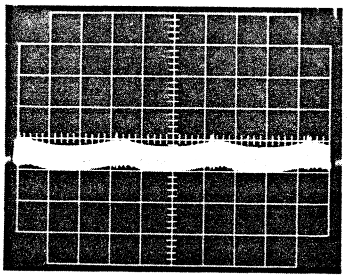
15-A IC1503-16
50mV/20μsec.cm



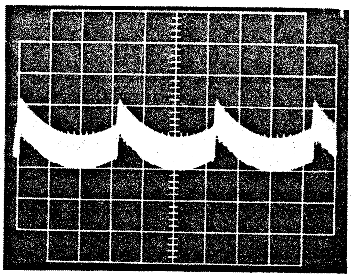
16-A IC1503-17
50mV/20μsec.cm



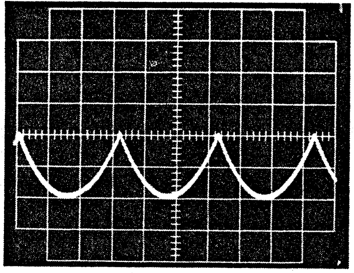
17-A IC1503-20
50mV/20μsec.cm



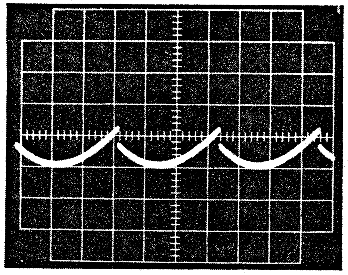
18-A IC1503-21
50mV/20μsec.cm



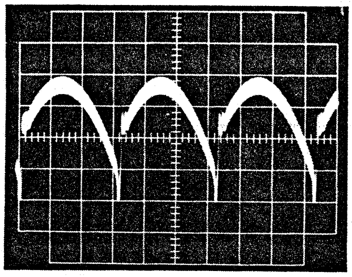
19-A TP1501
0.1V/20μsec.cm



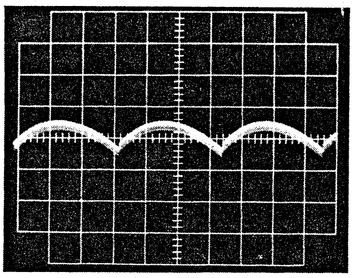
20-A TP1502
50mV/5msec.cm



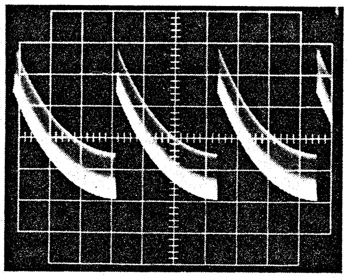
21-A TP1503
0.2V/20μsec.cm



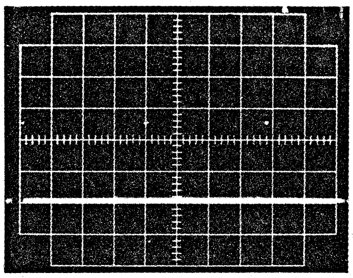
22-A TP1504
0.5V/5msec.cm



23-A TP1505
0.2V/5msec.cm



24-A TP1508
2V/5msec. cm



REGULATOR CIRCUIT BOARD

Q1501

B	4.1
C	12.0
E	3.6

Q1502

B	4.5
C	5.2
E	5.2

Q1503

B	11.4
C	12.1
E	12.1

Q1504

B	4.8
C	0
E	0

Q1505

B	5.3
C	0
E	0

Q1506

B	0.3
C	5.2
E	5.2

Q1507

B	5.3
C	0
E	0

Q1510

B	0
C	9.8
E	0

Q1511

B	0
C	0.7
E	0

Q1512

B	0.7
C	0.1
E	0

Q1514

D	3.2
G	3.9
S	3.1

Q1515

B	0
C	3.9
E	0

Q1516

B	5.2
C	5.2
E	5.2

Q1520

B	3.8
C	9.1
E	3.1

IC1503

21	1.9
20	1.9
19	2.0
18	0
17	1.9
16	1.9
15	8.3
14	0
13	1.9
12	1.9
11	1.9
10	1.9
9	1.9
8	1.9
7	1.9
6	8.3
5	1.9
4	1.9
3	1.9
2	4.5
1	4.5

IC1502

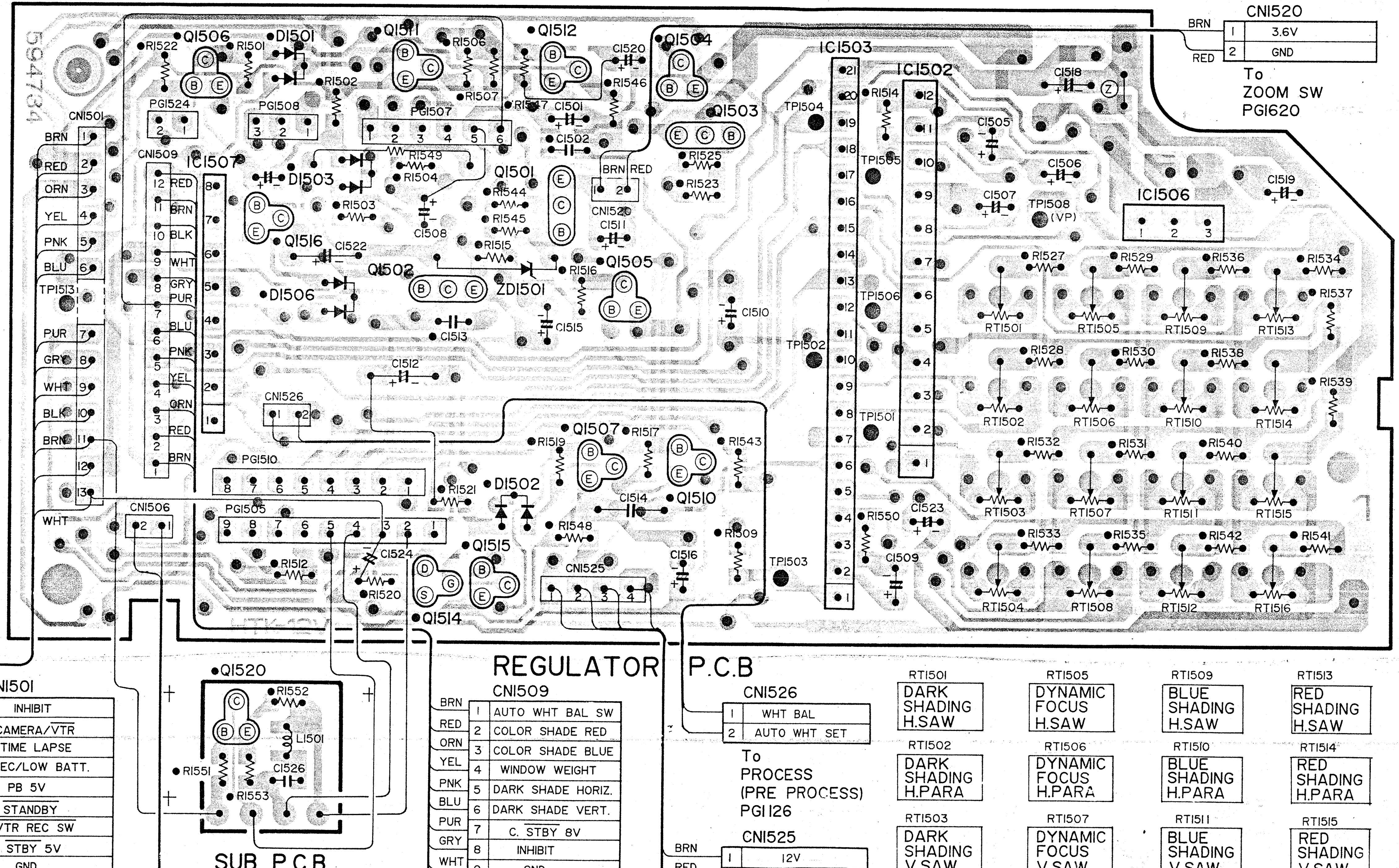
12	2.3
11	1.9
10	0.2
9	3.9
8	1.9
7	1.9
6	8.3
5	0
4	1.9
3	1.9
2	3.9
1	1.4

IC1506

1	2	3
12.1	0	9.1

IC1507

1	0.3
2	0
3	0
4	4.5
5	4.1
6	——
7	——
8	5.2


594734
Q1506
D1501
Q1511
Q1512
Q1504
Q1503
IC1503
IC1502
IC1506
IC1507
D1503
Q1516
Q1501
Q1502
Q1505
ZD1501
D1506
Q1507
Q1510
D1502
Q1515
Q1514
Q1520
L1501
R1501
R1502
R1503
R1504
R1506
R1507
R1509
R1512
R1514
R1515
R1516
R1517
R1519
R1520
R1521
R1522
R1523
R1525
R1527
R1528
R1529
R1530
R1531
R1532
R1533
R1534
R1535
R1536
R1537
R1538
R1539
R1540
R1541
R1542
R1543
R1544
R1545
R1546
R1547
R1548
R1549
R1550
R1551
R1552
R1553
C1501
C1502
C1505
C1506
C1507
C1508
C1509
C1510
C1511
C1512
C1513
C1514
C1515
C1516
C1518
C1519
C1520
C1522
C1523
C1524
C1526
TP1501
TP1502
TP1503
TP1504
TP1505
TP1506
TP1508 (VP)
TP1513
RT1501
RT1502
RT1503
RT1504
RT1505
RT1506
RT1507
RT1508
RT1509
RT1510
RT1511
RT1512
RT1513
RT1514
RT1515
RT1516
CN1501
CN1506
CN1509
CN1520
CN1525
CN1526
PG1505
PG1507
PG1508
PG1510
PG1524
BRN
RED
ORN
YEL
PNK
BLU
PUR
GRY
WHT
BLK
REGULATOR P.C.B
SUB P.C.B
A
B
C
D
E

CN1501

BRN	1	INHIBIT
RED	2	CAMERA/VTR
ORN	3	TIME LAPSE
YEL	4	REC/LOW BATT.
PNK	5	PB 5V
BLU	6	STANDBY
PUR	7	VTR REC SW
GRY	8	STBY 5V
WHT	9	GND
BLK	10	12V
BRN	11	VIDEO (V → C)
	12	GND
WHT	13	VIDEO (C → V)

To
MAIN
(SYS.CON.)
PG901

CN1506

1	VTR REC SW
2	GND

To
VTR REC SW
PG1606

CN1509

BRN	1	AUTO WHT BAL SW
RED	2	COLOR SHADE RED
ORN	3	COLOR SHADE BLUE
YEL	4	WINDOW WEIGHT
PNK	5	DARK SHADE HORIZ.
BLU	6	DARK SHADE VERT.
PUR	7	C. STBY 8V
GRY	8	INHIBIT
WHT	9	GND
BLK	10	VIDEO
BRN	11	WHT BAL RESET
RED	12	C. STBY 5V

To
PROCESS
(PRE PROCESS)
PG1109

CN1526

1	WHT BAL
2	AUTO WHT SET

To
PROCESS
(PRE PROCESS)
PG1126

CN1525

BRN	1	12V
RED	2	COMMON
ORN	3	C8V
YEL	4	PWR SAVE

To
8V REG
PG1625

PG1524

1	AUTO WHT BAL
2	AUTO WHT SET

To
LENS BLOCK
(SWITCH)
CN4

RT1501	RT1505	RT1509	RT1513
DARK SHADING H.SAW	DYNAMIC FOCUS H.SAW	BLUE SHADING H.SAW	RED SHADING H.SAW
RT1502	**RT1506**	**RT1510**	**RT1514**
DARK SHADING H.PARA	DYNAMIC FOCUS H.PARA	BLUE SHADING H.PARA	RED SHADING H.PARA
RT1503	**RT1507**	**RT1511**	**RT1515**
DARK SHADING V.SAW	DYNAMIC FOCUS V.SAW	BLUE SHADING V.SAW	RED SHADING V.SAW
RT1504	**RT1508**	**RT1512**	**RT1516**
DARK SHADING V.PARA	DYNAMIC FOCUS V.PARA	BLUE SHADING V.PARA	RED SHADING V.PARA

NOTE : MARK "Ⓩ" IS LEADLESS JUMPER.
MARK "●" IS LEADLESS(CHIP) COMPONENT.

CN1520

BRN	1	3.6V
RED	2	GND

To
ZOOM SW
PG1620

PG1505

1	VIDEO (C → CHARA.)	4
2	GND	5
3	VIDEO (CHARA. → C)	6
4	EVF VIDEO	7
5	C. PB STBY 9V	8
6	REC/LOW BATT.	9
7	A/V CONT.	10
8	CHARA. GENE.	11
9	TIME LAPSE	12

To
EVF
CONNECTOR
VIA CN1005

PG1507

6	C. STBY 8V
5	C8V
4	GND
3	12V
2	STBY 12V
1	STANDBY

To
CAMERA SW
CN1607

PG1508

1	C. STBY 8V	3
2	STBY 12V	5
3	GND	6

To
LENS BLOCK
(AUTO FOCUS)
CN6

PG1510

1	VP
2	CP 2
3	DYNAMIC FOCUS
4	REF 1.8V
5	C. STBY 8V
6	GND
7	C8V
8	C. STBY 5V

To
DEFLECTION
CN1310

▨	Soldered Side
░	Parts Side
●	Through hole

ZOOM

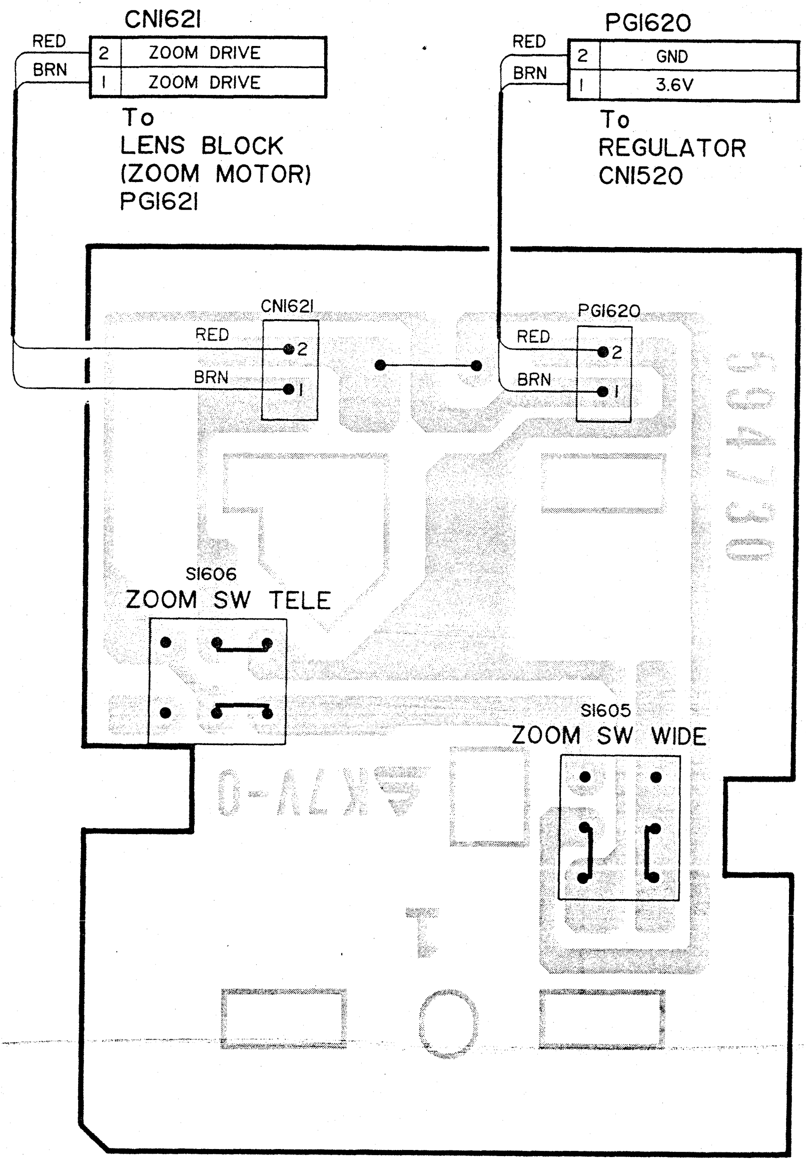
8V REG

PG

To
RE
CN

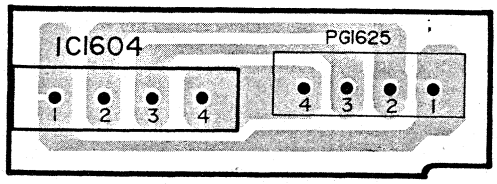
1 2 3 4 5 6 7 8

ZOOM SW CIRCUIT BOARD


CN1621
RED
BRN
2 ZOOM DRIVE
1 ZOOM DRIVE
To
LENS BLOCK
(ZOOM MOTOR)
PG1621
PG1620
RED
BRN
2 GND
1 3.6V
To
REGULATOR
CN1520
CN1621
RED 2
BRN 1
PG1620
RED 2
BRN 1
594730
S1606
ZOOM SW TELE
S1605
ZOOM SW WIDE
K7V-0
1

ZOOM SW P.C.B

8V REG CIRCUIT BOARD


IC1604
PG1625
1
2
3
4
4
3
2
1

8V REG P.C.B

PG1625

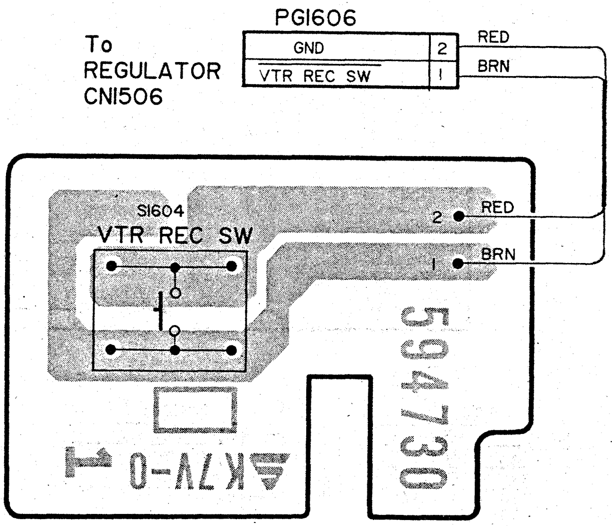
1	12V
2	COMMON
3	C8V
4	PWR SAVE

To
REGULATOR
CN1525

IC1604

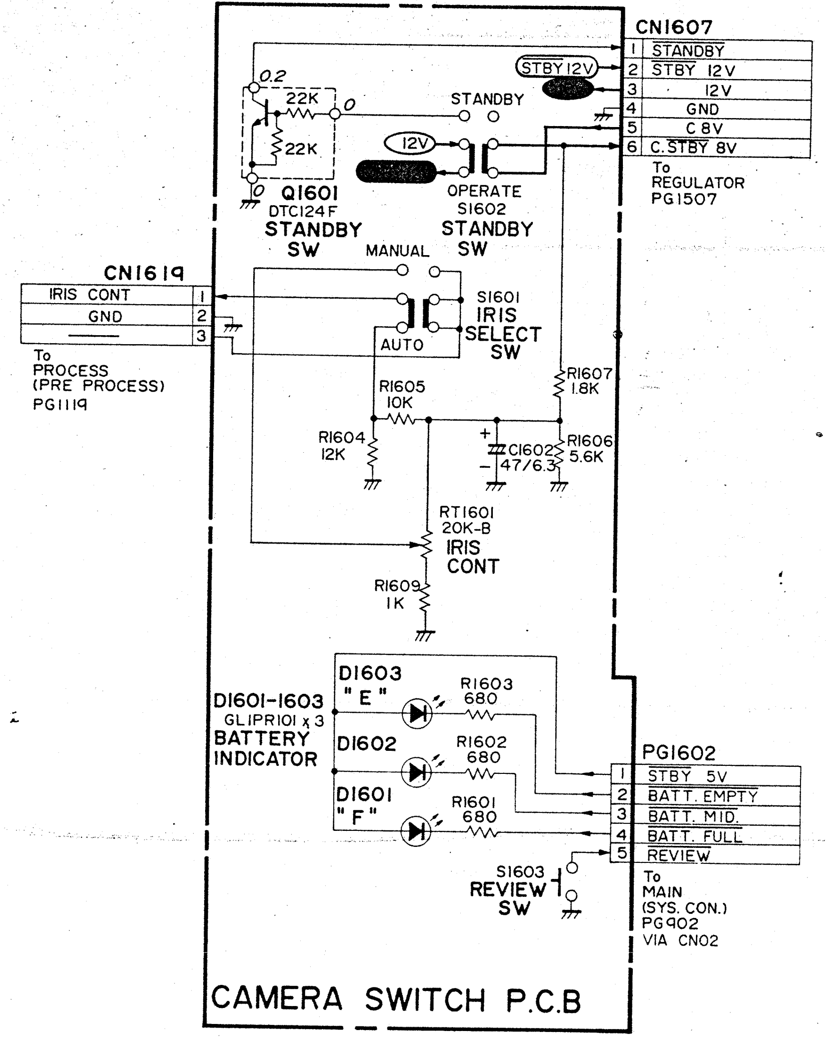
1	2	3	4
13.7	0.3	8.3	9.8

VTR REC SW CIRCUIT BOARD

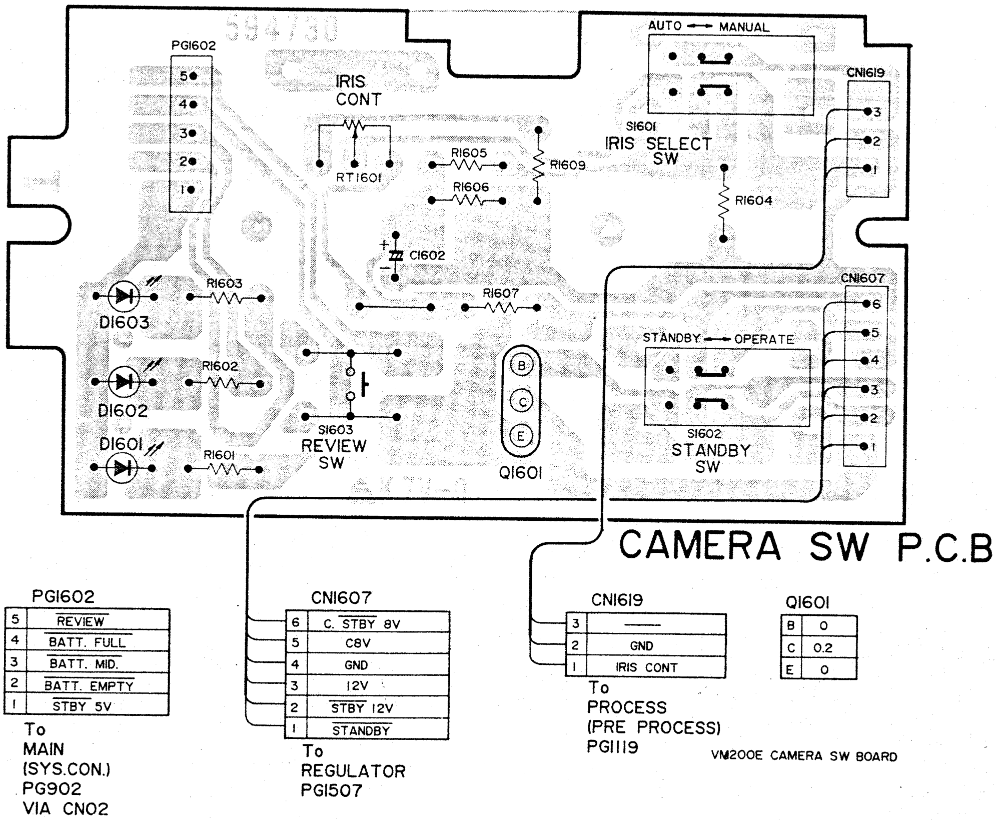

PG1606
To
REGULATOR
CN1506
GND 2 RED
VTR REC SW 1 BRN
S1604
VTR REC SW
2 RED
1 BRN
594730
K7V-0
1

VTR REC SW P.C.B

CAMERA SWITCH SCHEMATIC DIAGRAM


CN1607
1 STANDBY
2 STBY 12V
3 12V
4 GND
5 C8V
6 C.STBY 8V
To REGULATOR PG1507
STBY 12V
0.2
22K
22K
0
0
STANDBY
12V
OPERATE
S1602
STANDBY SW
Q1601
DTC124F
STANDBY SW
MANUAL
CN1619
IRIS CONT
GND
To PROCESS (PRE PROCESS) PG1119
S1601
IRIS SELECT SW
AUTO
R1607 1.8K
R1605 10K
R1604 12K
C1602 47/6.3
R1606 5.6K
RT1601 20K-B
IRIS CONT
R1609 1K
D1601-1603 GLIPR101 x 3
BATTERY INDICATOR
D1603 "E"
R1603 680
D1602
R1602 680
D1601 "F"
R1601 680
PG1602
1 STBY 5V
2 BATT. EMPTY
3 BATT. MID.
4 BATT. FULL
5 REVIEW
S1603
REVIEW SW
To MAIN (SYS. CON.) PG902 VIA CN02
CAMERA SWITCH P.C.B

CAMERA SWITCH CIRCUIT BOARD


AUTO ⟷ MANUAL
PG1602
IRIS CONT
RT1601
R1605
R1606
R1609
S1601
IRIS SELECT SW
R1604
CN1619
C1602
R1603
D1603
R1607
CN1607
STANDBY ⟷ OPERATE
R1602
D1602
D1601
R1601
S1603
REVIEW SW
B
C
E
Q1601
S1602
STANDBY SW
CAMERA SW P.C.B

PG1602

5	REVIEW
4	BATT. FULL
3	BATT. MID.
2	BATT. EMPTY
1	STBY 5V

To
MAIN
(SYS.CON.)
PG902
VIA CN02

CN1607

6	C. STBY 8V
5	C8V
4	GND
3	12V
2	STBY 12V
1	STANDBY

To
REGULATOR
PG1507

CN1619

3	———
2	GND
1	IRIS CONT

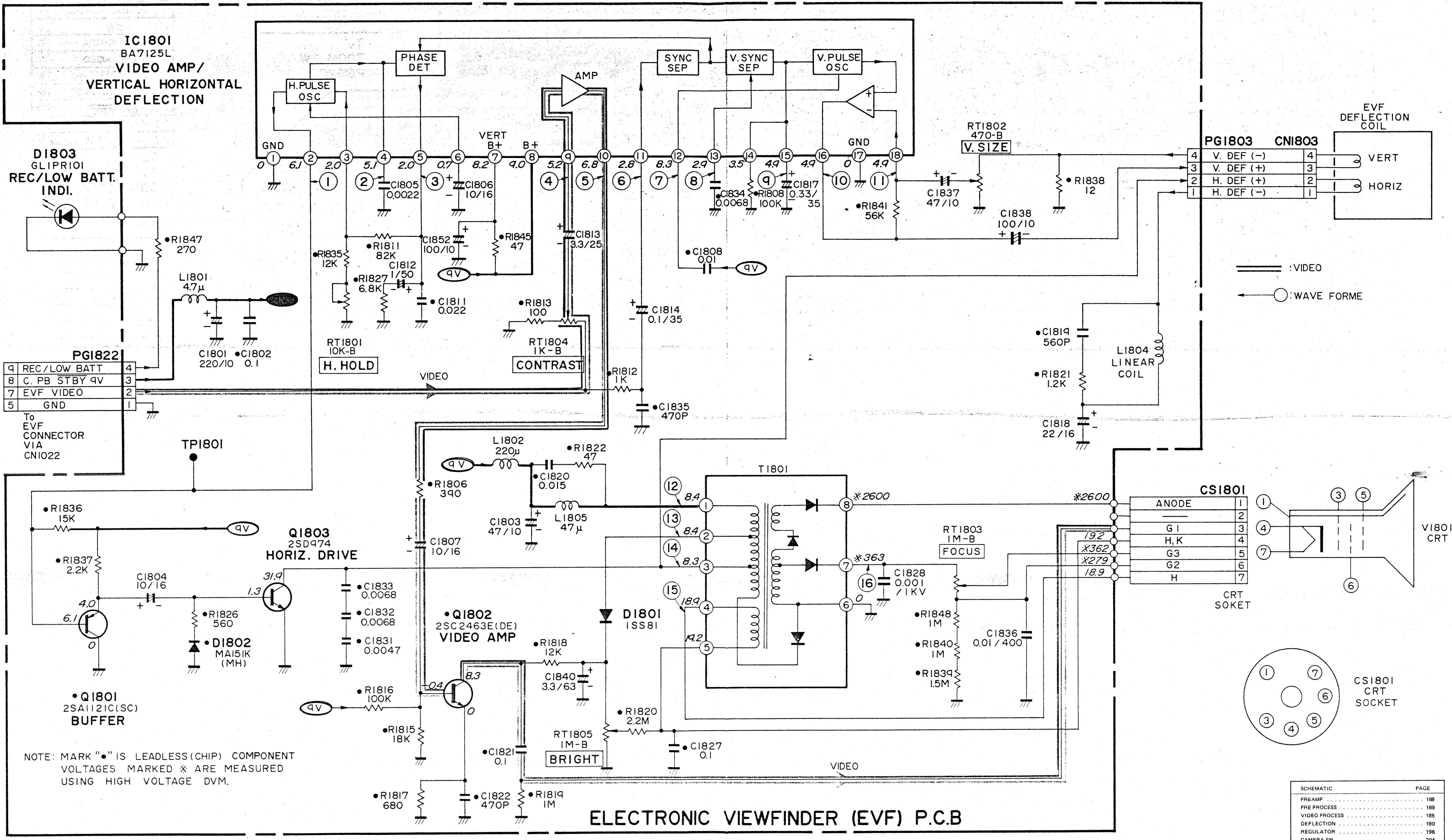
To
PROCESS
(PRE PROCESS)
PG1119

Q1601

B	0
C	0.2
E	0

VM200E CAMERA SW BOARD

ELECTRONIC VIEWFINDER (EVF) SCHEMATIC DIAGRAM


IC1801
BA7125L
VIDEO AMP/
VERTICAL HORIZONTAL
DEFLECTION
H.PULSE OSC
PHASE DET
AMP
SYNC SEP
V.SYNC SEP
V.PULSE OSC
GND
VERT B+
B+
GND
D1803
GLIPR101
REC/LOW BATT. INDI.
R1847 270
L1801 4.7μ
C1801 220/10
C1802 0.1
PG1822
9 REC/LOW BATT
8 C. PB STBY 9V
7 EVF VIDEO
5 GND
To EVF CONNECTOR VIA CN1022
TP1801
C1805 0.0022
C1806 10/16
R1835 12K
R1811 82K
C1852 100/10
R1845 47
R1827 6.8K
C1812 1/50
C1811 0.022
9V
RT1801 10K-B
H. HOLD
R1813 100
RT1804 1K-B
CONTRAST
C1813 3.3/25
C1814 0.1/35
R1812 1K
C1835 470P
VIDEO
C1808 0.01
C1834 0.0068
R1808 100K
C1817 0.33/35
R1841 56K
C1837 47/10
RT1802 470-B
V. SIZE
C1838 100/10
R1838 12
PG1803
CN1803
V. DEF (−)
V. DEF (+)
H. DEF (+)
H. DEF (−)
EVF DEFLECTION COIL
VERT
HORIZ
:VIDEO
:WAVE FORME
C1819 560P
R1821 1.2K
L1804 LINEAR COIL
C1818 22/16
L1802 220μ
R1822 47
C1820 0.015
C1803 47/10
L1805 47μ
R1806 390
C1807 10/16
T1801
※2600
※363
C1828 0.001/1KV
RT1803 1M-B
FOCUS
R1848 1M
R1840 1M
R1839 1.5M
C1836 0.01/400
CS1801
ANODE
G1
H, K
G3
G2
H
CRT SOKET
V1801 CRT
CS1801 CRT SOCKET
R1836 15K
R1837 2.2K
C1804 10/16
Q1803
2SD974
HORIZ. DRIVE
R1826 560
D1802
MA151K (MH)
C1833 0.0068
C1832 0.0068
C1831 0.0047
Q1802
2SC2463E(DE)
VIDEO AMP
R1818 12K
C1840 3.3/63
D1801
1SS81
R1816 100K
R1815 18K
R1820 2.2M
RT1805 1M-B
BRIGHT
C1827 0.1
C1821 0.1
R1817 680
C1822 470P
R1819 1M
Q1801
2SA1121C(SC)
BUFFER
ELECTRONIC VIEWFINDER (EVF) P.C.B

NOTE: MARK "•" IS LEADLESS(CHIP) COMPONENT
VOLTAGES MARKED ※ ARE MEASURED
USING HIGH VOLTAGE DVM.

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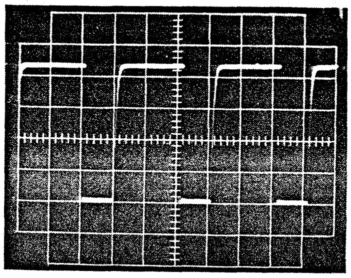
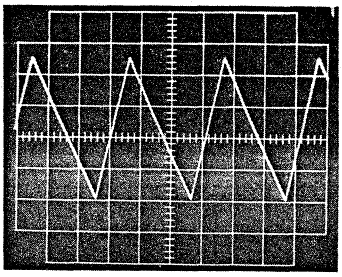
ELECTRONIC VIEWFINDER WAVEFORMS

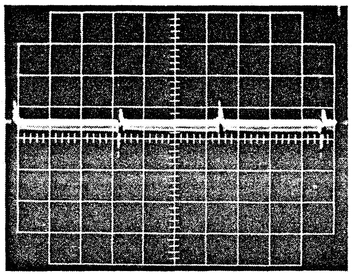
1-A IC1801-2
2V/20μsec.cm



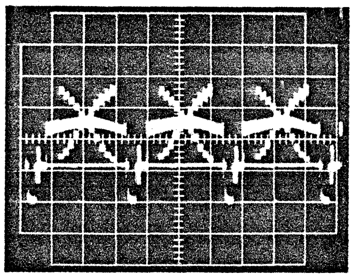
2-A IC1801-4
0.5V/20μsec.cm



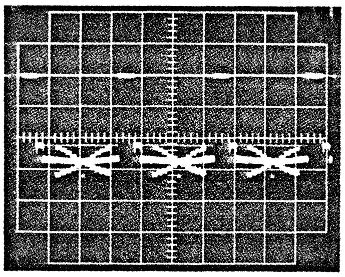
3-A IC1801-5
0.2V/20μsec.cm



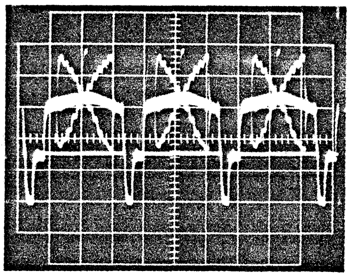
4-A IC1801-9
0.1V/20 μsec. cm



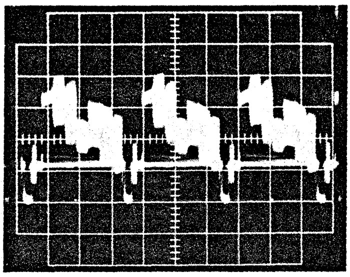
5-A IC1801-10
0.5V/20 μsec. cm



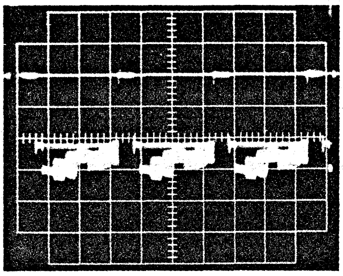
6-A IC1801-11
0.2V/20 μsec. cm



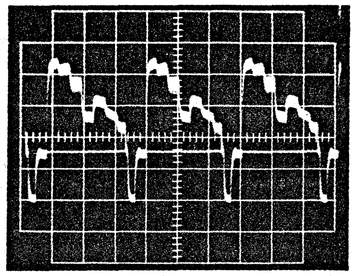
4-B IC1801-9 (Colour bar)
0.1V/20 μsec. cm



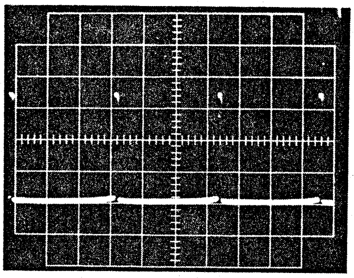
5-B IC1801-10 (Colour bar)
0.5V/20 μsec. cm



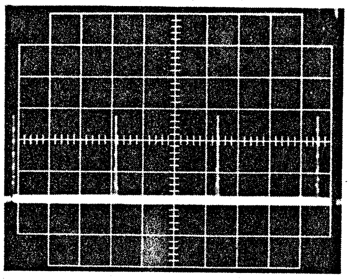
6-B IC1801-11 (Colour bar)
0.2V/20 μsec. cm



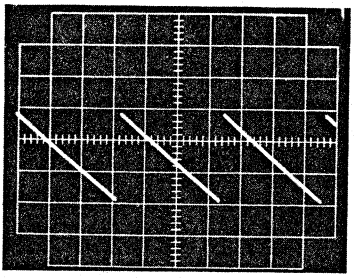
7-A IC1801-12
0.2V/5msec.cm



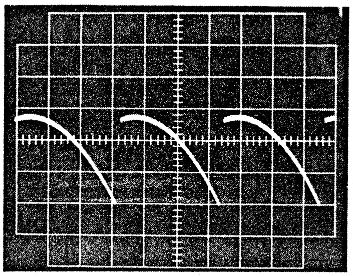
8-A IC1801-13
1V/5msec.cm



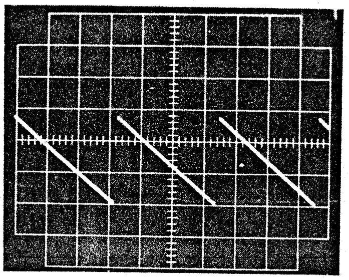
9-A IC1801-15
0.2V/5msec.cm



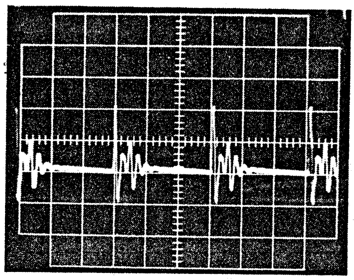
10-A IC1801-16
2V/5msec.cm



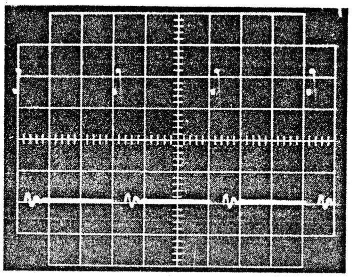
11-A IC1801-18
0.2V/5msec.cm



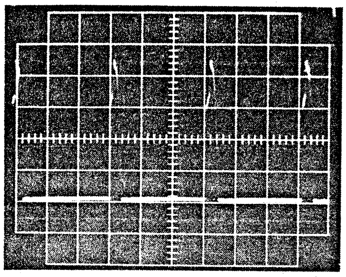
12-A T1801-1
5V/20μsec.cm



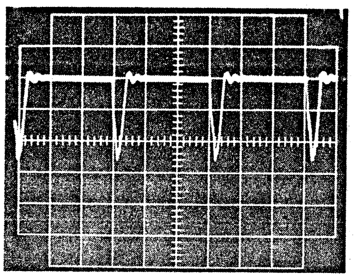
13-A T1801-2
10V/20μsec.cm



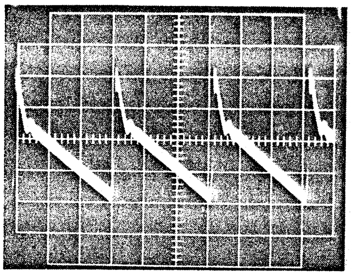
14-A T1801-3
20V/20μsec.cm



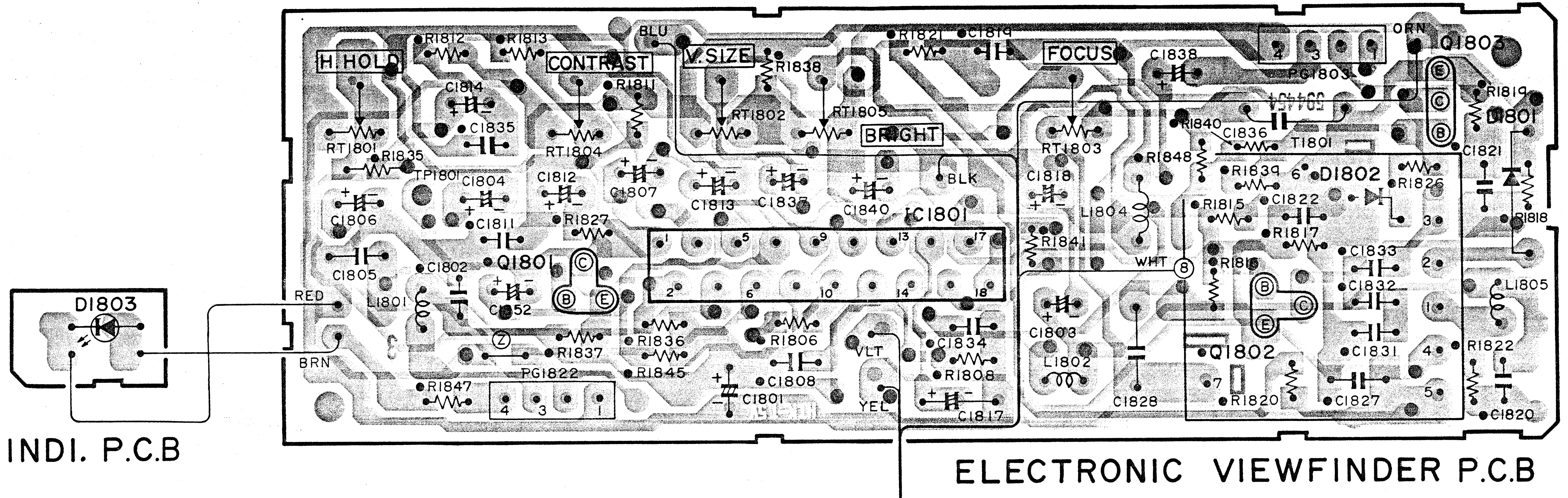
15-A T1801-4
1V/20μsec.cm



16-A T1801-7
2V/20μsec.cm



ELECTRONIC VIEWFINDER (EVF) CIRCUIT BOARD


H.HOLD
R1812
R1813
CONTRAST
R1811
BLU
V.SIZE
R1838
RT1802
RT1805
BRIGHT
R1821
C1819
FOCUS
C1838
PG1803
ORN
Q1803
R1819
D1801
C1814
C1835
RT1801
R1835
TP1801
C1804
C1812
RT1804
C1807
C1806
C1811
R1827
C1813
C1837
C1840
BLK
IC1801
RT1803
C1818
L1804
R1840
C1836
T1801
R1848
R1839
D1802
R1826
C1822
R1815
R1817
C1821
R1818
R1841
WHT
R1816
C1833
C1832
L1805
C1805
C1802
Q1801
RED
L1801
C1852
C1803
Q1802
C1831
R1822
D1803
BRN
R1837
R1836
R1806
R1845
C1808
C1801
VLT
C1834
R1808
YEL
C1817
R1847
PG1822
L1802
C1828
R1820
C1827
C1820
INDI. P.C.B
ELECTRONIC VIEWFINDER P.C.B

▨ : Soldered Side

▨ : Parts Side

● : Through hole

PG1803

4	V. DEF (−)
3	V. DEF (+)
2	H. DEF (+)
1	H. DEF (−)

To
EVF
DEFLECTION
COIL
CN1803

PG1822

4	REC/LOW BATT.	9
3	C. PB ~~STBY~~ 9V	8
2	EVF VIDEO	7
1	GND	5

To
EVF
CONNECTOR
VIA
CN1022

CS1801

WHT	1	ANODE
	2	——
ORN	3	G1
YEL	4	H, K
BLK	5	G3
BLU	6	G2
VLT	7	H

To
CRT
SOCKET

※ NOTE : MARK "Ⓩ" IS LEADLESS JUMPER.
MARK "●" IS LEADLESS (CHIP) COMPONENT.

IC1801

1	3	5	7	9	11	13	15	17
0	2.0	2.0	8.2	5.2	2.8	2.9	4.9	0
2	4	6	8	10	12	14	16	18
6.1	5.1	0.7	9.0	6.8	8.3	3.5	4.9	4.9

Q1801

B	6.1
C	0
E	4.0

Q1802

B	-0.4
C	8.3
E	0

Q1803

B	1.3
C	31.9
E	-

ELECTRONIC VIEWFINDER BOARD

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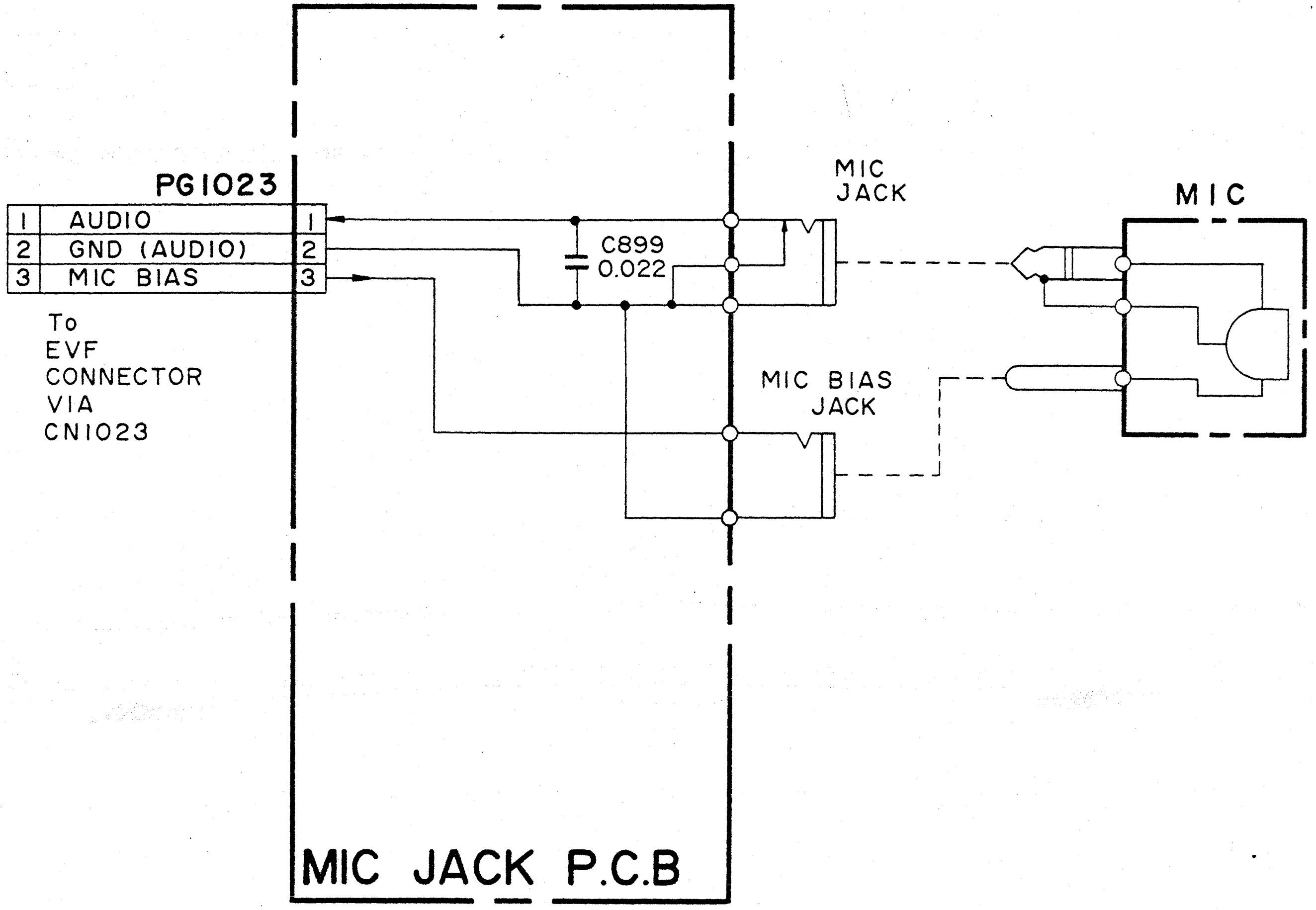
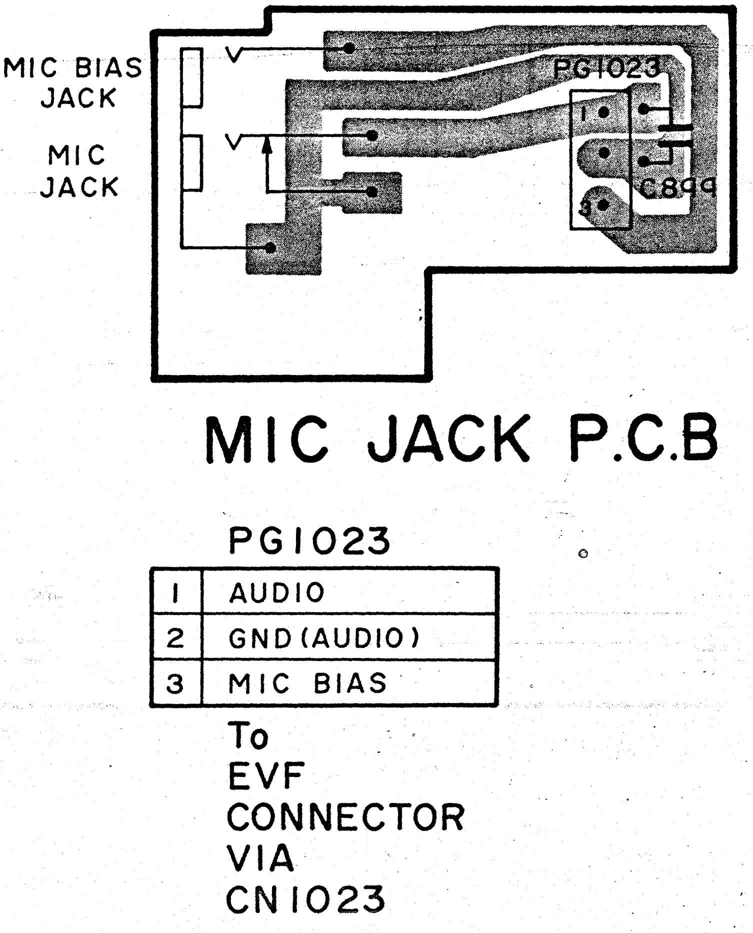
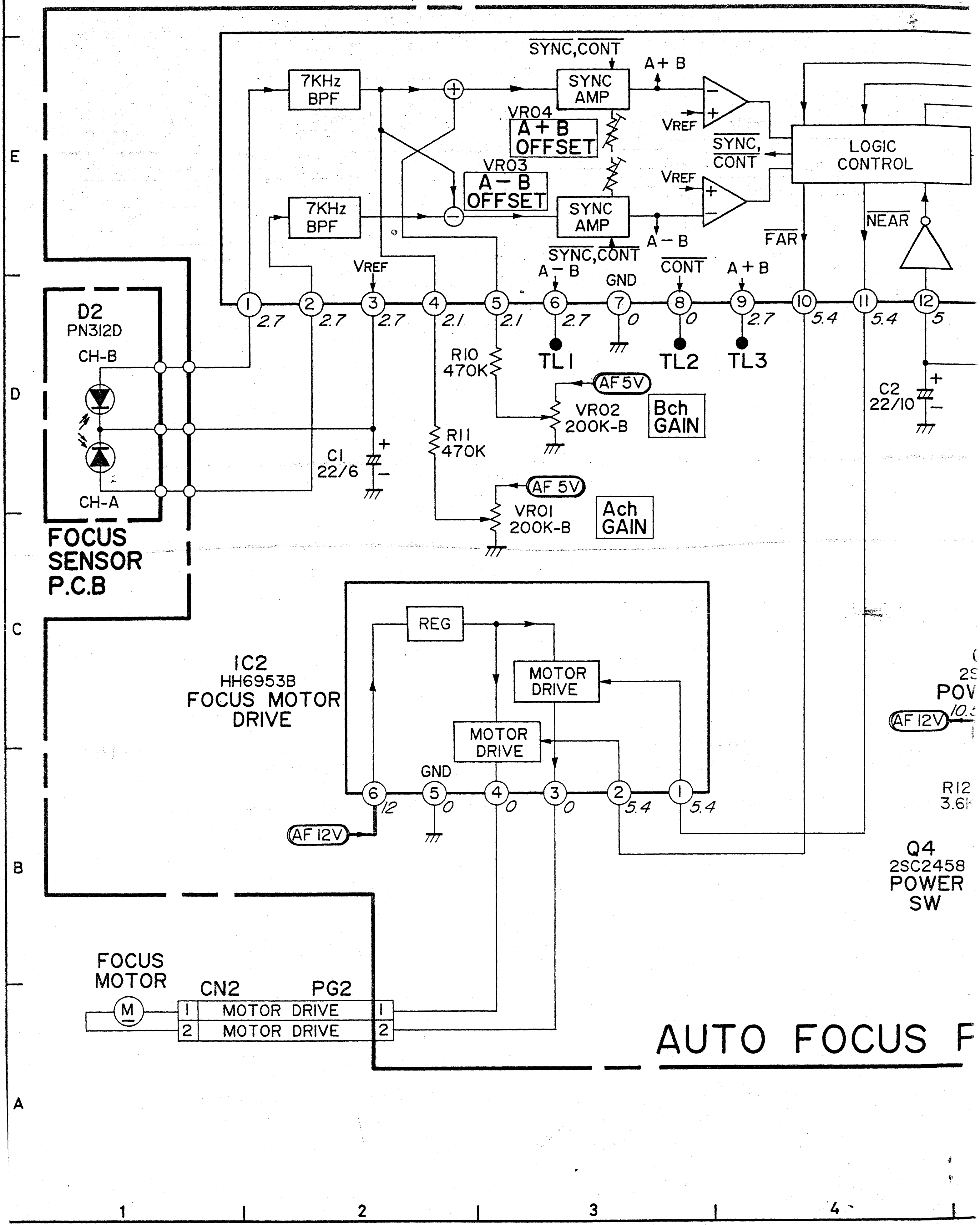
MIC JACK SCHEMATIC DIAGRAM

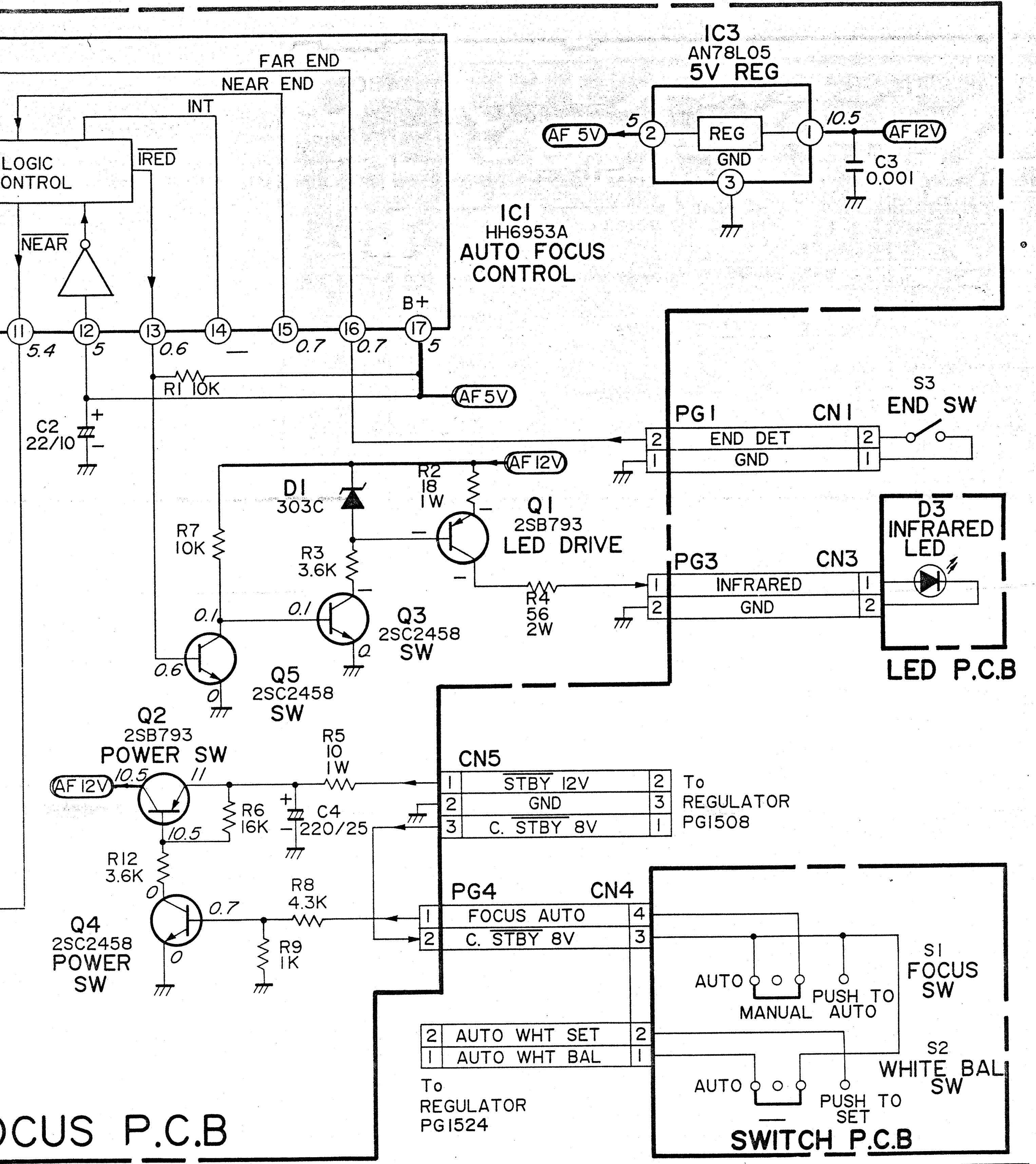

PG1023
1 AUDIO 1
2 GND (AUDIO) 2
3 MIC BIAS 3
To
EVF
CONNECTOR
VIA
CN1023
C899
0.022
MIC
JACK
MIC BIAS
JACK
MIC
MIC JACK P.C.B

MIC JACK CIRCUIT BOARD DIAGRAM


MIC BIAS
JACK
MIC
JACK
PG1023
1
2
3
C899
MIC JACK P.C.B
PG1023
1 AUDIO
2 GND (AUDIO)
3 MIC BIAS
To
EVF
CONNECTOR
VIA
CN1023

AUTO FOCUS SCHEMATIC DIAGRAM


7KHz BPF
7KHz BPF
SYNC AMP
SYNC AMP
SYNC,CONT
SYNC,CONT
A+ B
A − B
VR04
A + B OFFSET
VR03
A − B OFFSET
VREF
VREF
SYNC, CONT
LOGIC CONTROL
NEAR
FAR
VREF
A − B
GND
CONT
A + B
2.7
2.7
2.7
2.1
2.1
2.7
0
0
2.7
5.4
5.4
5
TL1
TL2
TL3
R10 470K
AF 5V
VR02 200K-B
Bch GAIN
R11 470K
AF 5V
VR01 200K-B
Ach GAIN
C2 22/10
D2
PN312D
CH-B
CH-A
C1 22/6
FOCUS SENSOR P.C.B
IC2
HH6953B
FOCUS MOTOR DRIVE
REG
MOTOR DRIVE
MOTOR DRIVE
GND
12
0
0
0
5.4
5.4
AF 12V
AF 12V
10.5
2S
POW
R12 3.6K
Q4
2SC2458
POWER SW
FOCUS MOTOR
M
CN2
PG2
1 MOTOR DRIVE 1
2 MOTOR DRIVE 2
AUTO FOCUS F
E
D
C
B
A
1
2
3
4


IC3
AN78L05
5V REG
AF 5V
5
2
REG
GND
3
1
10.5
AF12V
C3
0.001
FAR END
NEAR END
INT
LOGIC
ONTROL
IRED
NEAR
IC1
HH6953A
AUTO FOCUS
CONTROL
B+
11
12
13
14
15
16
17
5.4
5
0.6
—
0.7
0.7
5
R1 10K
AF5V
C2
22/10
PG1
CN1
END DET
GND
S3
END SW
AF12V
D1
303C
R2
18
1W
Q1
2SB793
LED DRIVE
R7
10K
R3
3.6K
0.1
0.1
Q3
2SC2458
SW
R4
56
2W
PG3
CN3
INFRARED
GND
D3
INFRARED
LED
LED P.C.B
0.6
0
Q5
2SC2458
SW
Q2
2SB793
POWER SW
R5
10
1W
AF12V
10.5
11
R6
16K
C4
220/25
10.5
CN5
STBY 12V
GND
C. STBY 8V
To
REGULATOR
PG1508
R12
3.6K
Q4
2SC2458
POWER
SW
0.7
R8
4.3K
R9
1K
PG4
CN4
FOCUS AUTO
C. STBY 8V
AUTO
MANUAL
PUSH TO
AUTO
S1
FOCUS
SW
AUTO WHT SET
AUTO WHT BAL
To
REGULATOR
PG1524
AUTO
PUSH TO
SET
S2
WHITE BAL
SW
SWITCH P.C.B
OCUS P.C.B

SCHEMATIC	PAGE	SCHEMATIC	PAGE
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DEFLECTION	190	SWITCHING REGULATOR	228
REGULATOR	196	LUMA/CHROMA	229
CAMERA SW	204	FUNCTION SW	242
ELECTRONIC VIEWFINDER	205	AUDIO	248
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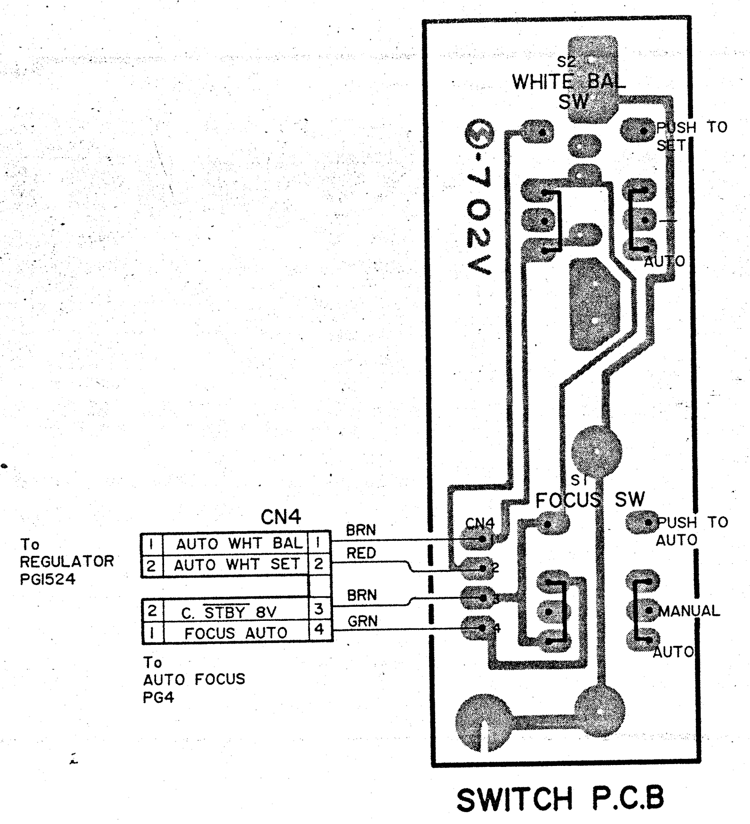
SWITCH CIRCUIT BOARD


S2
WHITE BAL
SW
PUSH TO
SET
AUTO
Ⓢ-702V
S1
FOCUS SW
PUSH TO
AUTO
MANUAL
AUTO
CN4
To
REGULATOR
PG1524
CN4
1 AUTO WHT BAL 1
2 AUTO WHT SET 2
2 C. STBY 8V 3
1 FOCUS AUTO 4
BRN
RED
BRN
GRN
To
AUTO FOCUS
PG4
SWITCH P.C.B

AUTO FOCUS CIRCUIT BOARD

IC1

1	2.7	10	5.4
2	2.7	11	5.4
3	2.7	12	5
4	2.1	13	0.6
5	2.1	14	—
6	2.7	15	0.7
7	0	16	0.7
8	0	17	5
9	2.7		

IC2

1	5.4
2	5.4
3	0
4	0
5	0
6	12

IC3

1	10.5
2	5
3	—

Q1

B	—
C	—
E	—

Q2

B	10.5
C	10.5
E	11

Q3

B	0.1
C	—
E	0

Q4

B	0.7
C	0
E	0

Q5

B	0.6
C	0.1
E	0

PG3

1	INFRARED
2	GND

To
LED
CN3

PG4 CN4

2	C. STBY 8V	4
1	FOCUS AUTO	3

To
SWITCH
CN4

PG1

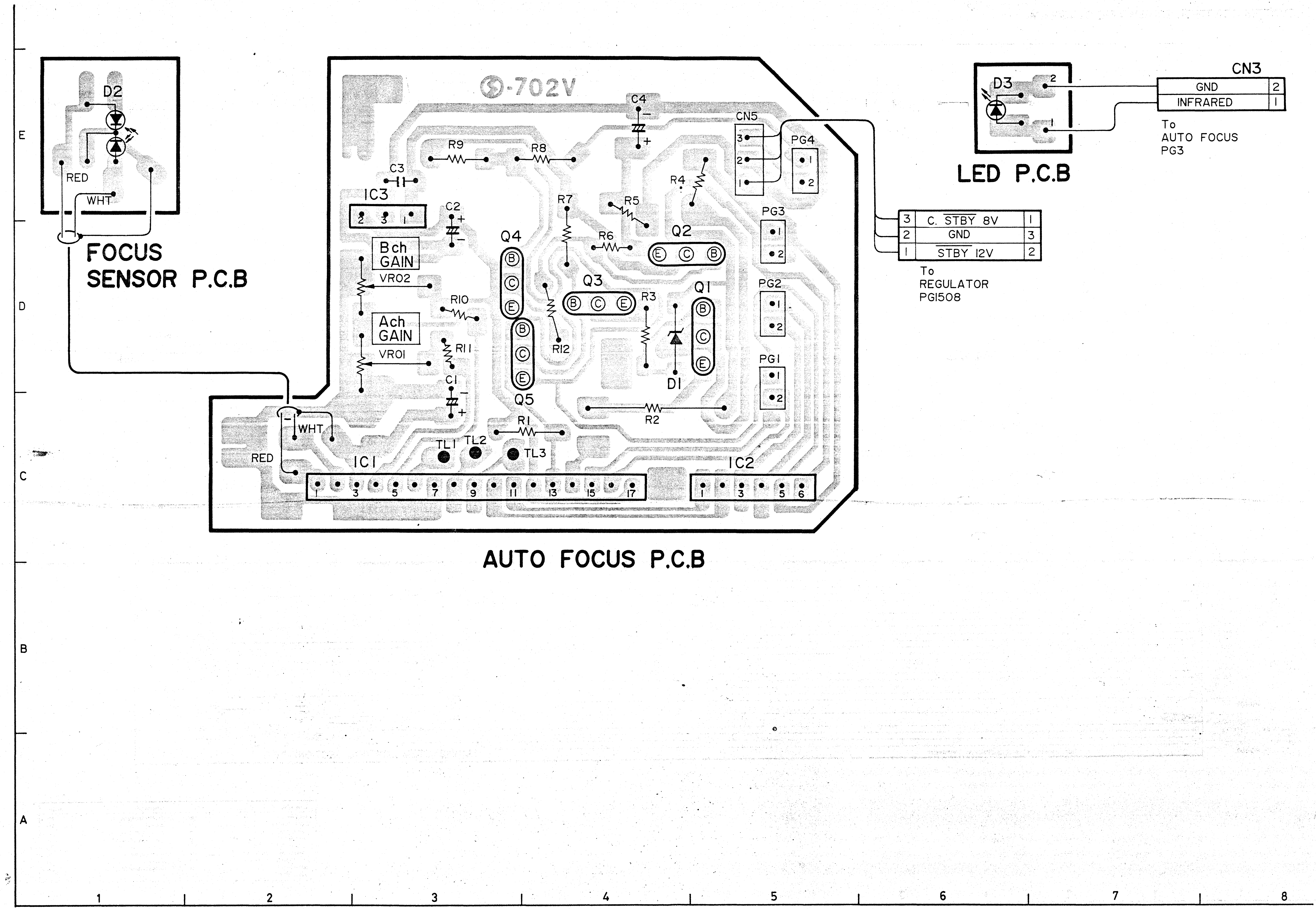
1	GND
2	END DET

To
END SW
VIA CN1

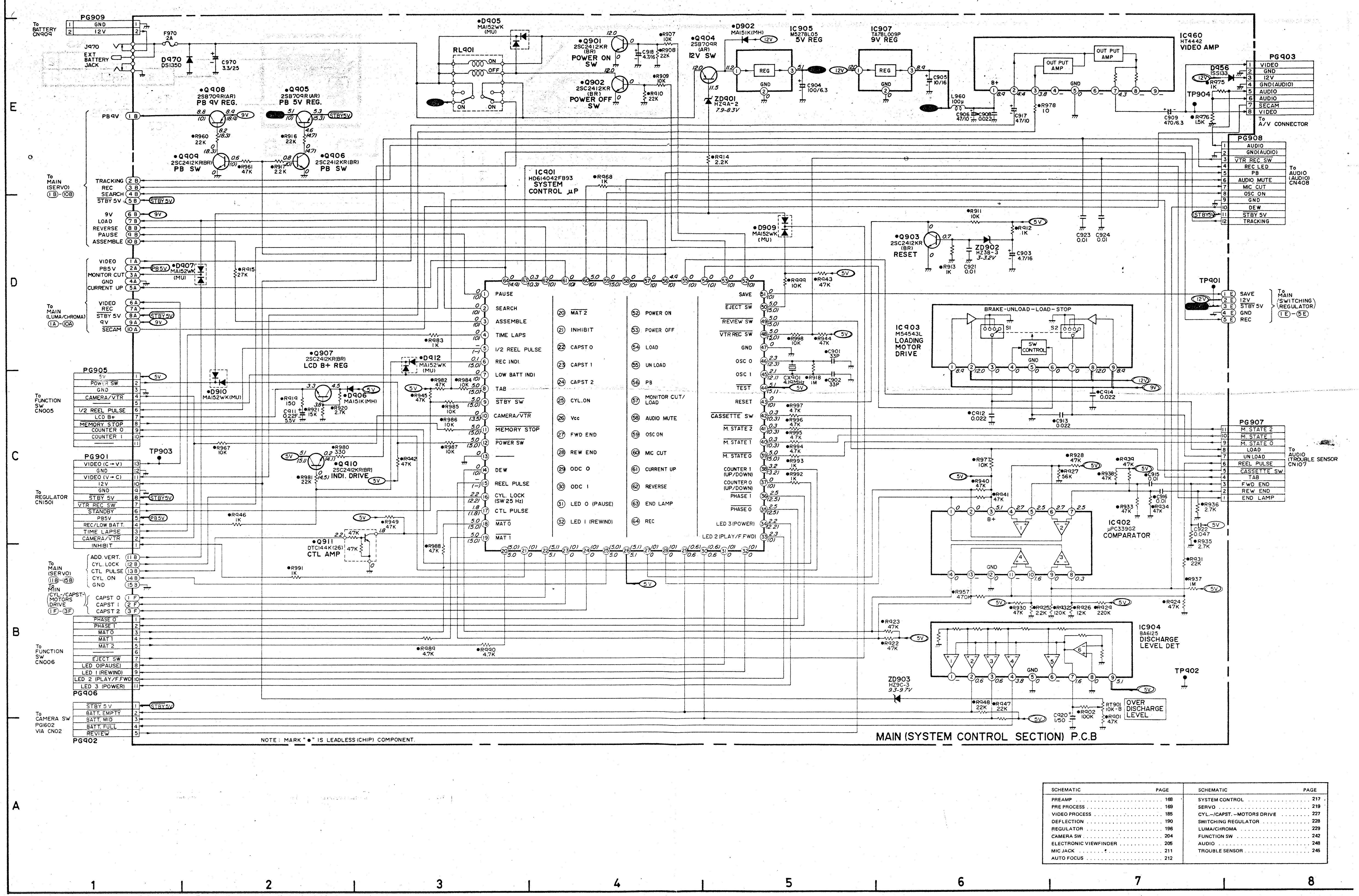
PG2

1	FOCUS DRIVE
2	FOCUS DRIVE

To
FOCUS
MOTOR
VIA CN2


E
D
C
B
A
1
2
3
4
5
6
7
8
D2
RED
WHT
FOCUS SENSOR P.C.B
S-702V
C4
CN5
PG4
R9
R8
C3
IC3
2 3 1
C2
Bch GAIN
VR02
R10
Ach GAIN
VR01
R11
C1
R7
R5
R4
R6
Q2
Q4
Q3
R3
Q1
R12
D1
Q5
PG3
PG2
PG1
R2
R1
TL1
TL2
TL3
IC1
IC2
1 3 5 7 9 11 13 15 17
1 3 5 6
AUTO FOCUS P.C.B
D3
LED P.C.B
CN3
GND 2
INFRARED 1
To AUTO FOCUS PG3
3 C. STBY 8V 1
2 GND 3
1 STBY 12V 2
To REGULATOR PG1508

SYSTEM CONTROL SCHEMATIC DIAGRAM


To BATTERY CN909
PG909
GND
12V
J970 EXT BATTERY JACK
F970 2A
D970 DS135D
C970 3.3/25
●Q908 2SB709R(AR) PB 9V REG.
●Q905 2SB709R(AR) PB 5V REG.
●Q909 2SC2412KR(BR) PB SW
●Q906 2SC2412KR(BR) PB SW
●R960 22K
●R961 47K
●R916 22K
●R917 2.2K
P89V
To MAIN (SERVO) (1B)-(10B)
TRACKING
REC
SEARCH
STBY 5V
9V
LOAD
REVERSE
PAUSE
ASSEMBLE
VIDEO
PB5V
MONITOR CUT
GND
CURRENT UP
To MAIN (LUMA/CHROMA) (1A)-(10A)
VIDEO
REC
STBY 5V
9V
SECAM
●D907 MA152WK (MU)
●R915 27K
●D905 MA152WK (MU)
RL901
ON
OFF
●Q901 2SC2412KR (BR) POWER ON SW
●Q902 2SC2412KR (BR) POWER OFF SW
●R907 10K
●R908 22K
C918 4.7/16
●R909 10K
●R910 22K
●Q904 2SB709R (AR) 12V SW
ZD901 HZ4A-2 7.9-8.3V
●D902 MA151K(MH)
IC905 M5278L05 5V REG
IC907 TA78L009P 9V REG
REG
GND
C904 100/6.3
C905 10/16
L960 100µ
C906 47/10
C908 0.022
C917 47/10
IC960 HT4442 VIDEO AMP
OUT PUT AMP
B+
●R978 10
C909 470/6.3
●R976 1.5K
D956 1SS133
●R975 1K
TP904
PG903
VIDEO
GND
12V
GND(AUDIO)
AUDIO
AUDIO
SECAM
VIDEO
To A/V CONNECTOR
PG908
AUDIO
GND(AUDIO)
VTR REC SW
REC LED
PB
AUDIO MUTE
MIC CUT
OSC ON
GND
DEW
STBY 5V
TRACKING
To AUDIO (AUDIO) CN408
●R914 2.2K
●R968 1K
IC901 HD614042F893 SYSTEM CONTROL µP
●D909 MA152WK (MU)
●R911 10K
●R912 1K
●Q903 2SC2412KR (BR) RESET
ZD902 HZ3B-3 3-3.2V
●R913 1K
C921 0.01
C903 4.7/16
C923 0.01
C924 0.01
PAUSE
SEARCH
ASSEMBLE
TIME LAPS
1/2 REEL PULSE
REC INDI
LOW BATT INDI
TAB
STBY SW
CAMERA/VTR
MEMORY STOP
POWER SW
DEW
REEL PULSE
CYL. LOCK (SW 25 Hz)
CTL PULSE
MAT 0
MAT 1
MAT 2
INHIBIT
CAPST 0
CAPST 1
CAPST 2
CYL. ON
Vcc
FWD END
REW END
ODC 0
ODC 1
LED 0 (PAUSE)
LED 1 (REWIND)
POWER ON
POWER OFF
LOAD
UN LOAD
PB
MONITOR CUT/ LOAD
AUDIO MUTE
OSC ON
MIC CUT
CURRENT UP
REVERSE
END LAMP
REC
SAVE
EJECT SW
REVIEW SW
VTR REC SW
GND
OSC 0
OSC 1
TEST
RESET
CASSETTE SW
M. STATE 2
M. STATE 1
M. STATE 0
COUNTER 1 (UP/DOWN)
COUNTER 0 (UP/DOWN)
PHASE 1
PHASE 0
LED 3 (POWER)
LED 2 (PLAY/F.FWD)
●R999 10K
●R943 47K
●R998 10K
●R944 47K
●C901 33P
CX901 4.19MHz
●R918 1M
●C902 33P
●R997 4.7K
●R996 4.7K
●R995 4.7K
●R994 4.7K
●R993 1K
●R992 1K
TP901
SAVE
12V
STBY 5V
GND
REC
To MAIN (SWITCHING REGULATOR) (1E)-(5E)
IC903 M54543L LOADING MOTOR DRIVE
BRAKE-UNLOAD-LOAD-STOP
S1
S2
SW CONTROL
●C914 0.022
●C912 0.022
●C913 0.022
PG907
M. STATE 2
M. STATE 1
M. STATE 0
LOAD
UN LOAD
REEL PULSE
CASSETTE SW
TAB
FWD END
REW END
END LAMP
To AUDIO (TROUBLE SENSOR) CN107
PG905
5V
POWER SW
GND
CAMERA/VTR
1/2 REEL PULSE
LCD B+
MEMORY STOP
COUNTER 0
COUNTER 1
To FUNCTION SW CN005
●D910 MA152WK(MU)
●R983 1K
●Q907 2SC2412KR(BR) LCD B+ REG
●D912 MA152WK (MU)
●R982 47K
●R984 10K
●R945 47K
●R985 10K
●R986 10K
●R987 10K
●R919 150
C911 0.22F 5.5V
●R921 15K
●R920 2.7K
●D906 MA151K(MH)
TP903
PG901
VIDEO (C→V)
GND
VIDEO (V→C)
12V
GND
STBY 5V
VTR REC SW
STANDBY
PB5V
REC/LOW BATT.
TIME LAPSE
CAMERA/VTR
INHIBIT
To REGULATOR CN1501
●R967 10K
●R980 330
●Q910 2SC2412KR(BR) INDI. DRIVE
●R981 22K
●R942 47K
●R946 1K
●R949 47K
●Q911 DTC144K(26) CTL AMP
●R988 47K
●R991 1K
To MAIN (SERVO) (11B)-(15B)
ADD. VERT.
CYL. LOCK
CTL PULSE
CYL. ON
GND
To MAIN (CYL-/CAPST- MOTORS DRIVE) (1F)-(3F)
CAPST 0
CAPST 1
CAPST 2
PHASE 0
PHASE 1
MAT 0
MAT 1
MAT 2
EJECT SW
LED 0(PAUSE)
LED 1 (REWIND)
LED 2 (PLAY/F.FWD)
LED 3 (POWER)
To FUNCTION SW CN006
PG906
●R989 4.7K
●R990 4.7K
STBY 5V
BATT. EMPTY
BATT. MID
BATT. FULL
REVIEW
To CAMERA SW PG1602 VIA CN02
PG902
NOTE : MARK "●" IS LEADLESS (CHIP) COMPONENT.
●R977 10K
●R940 47K
●R941 47K
●R928 47K
●R927 56K
●R938 47K
●R934 47K
●C915 0.01
●C916 0.01
●R933 47K
●R934 47K
●R936 2.7K
●C922 0.047
●R935 2.7K
IC902 µPC339G2 COMPARATOR
●R931 22K
●R937 1M
●R957 470K
●R930 47K
●R925 22K
●R932 120K
●R926 12K
●R929 220K
●R924 47K
●R923 47K
●R922 47K
IC904 BA6125 DISCHARGE LEVEL DET
ZD903 HZ9C-3 9.3-9.7V
TP902
●R948 22K
●R947 22K
C920 1/50
●R902 100K
RT901 10K-B
●R901 47K
OVER DISCHARGE LEVEL
MAIN (SYSTEM CONTROL SECTION) P.C.B
E
D
C
B
A
1
2
3
4
5
6
7
8

SCHEMATIC	PAGE	SCHEMATIC	PAGE
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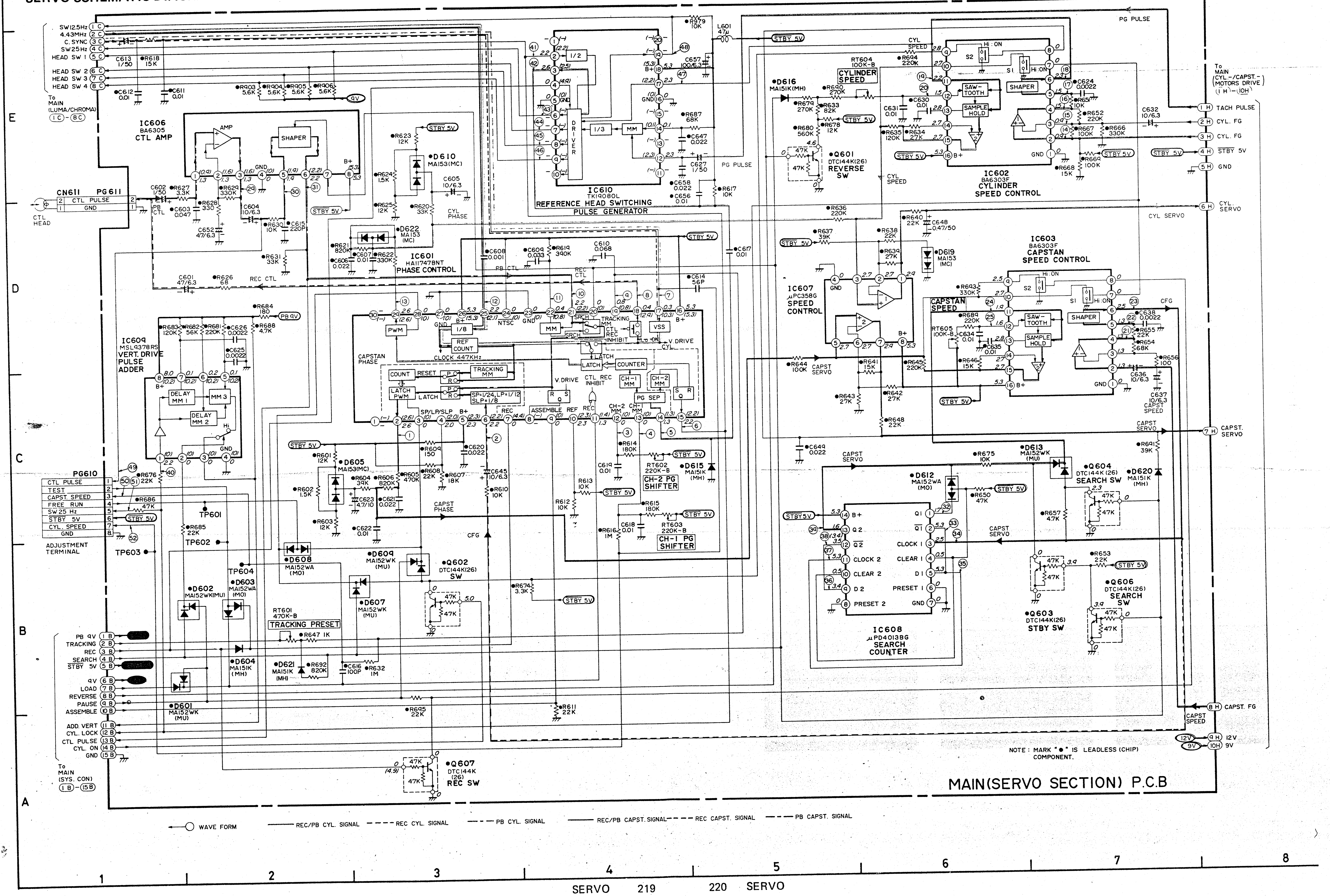
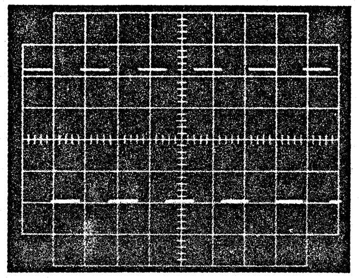
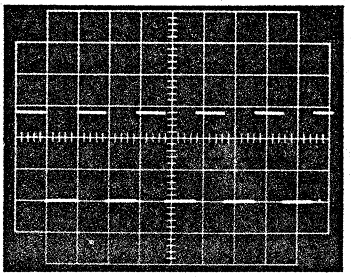
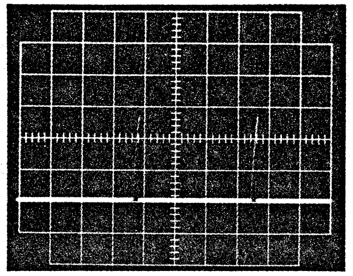
AUTO FOCUS	212		

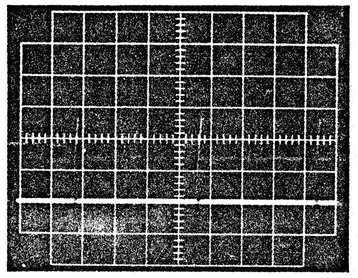
SERVO SCHEMATIC DIAGRAM

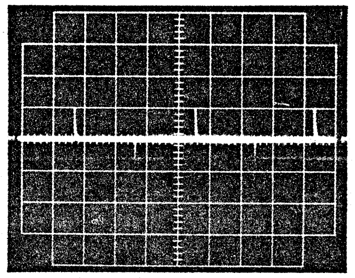

SW12.5Hz (1C)
4.43MHz (2C)
C. SYNC (3C)
SW25Hz (4C)
HEAD SW 1 (5C)
HEAD SW 2 (6C)
HEAD SW 3 (7C)
HEAD SW 4 (8C)
To MAIN (LUMA/CHROMA) (1C)-(8C)
IC606 BA6305 CTL AMP
AMP
SHAPER
CN611 PG611
CTL PULSE
GND
CTL HEAD
IC610 TK19080L REFERENCE HEAD SWITCHING PULSE GENERATOR
DRIVER
1/2
1/3
MM
L601 47µ
R979 10K
C657 100/6.3
PG PULSE
IC601 HA11747BNT PHASE CONTROL
D610 MA153(MC)
D622 MA153 (MC)
CYL PHASE
CAPSTAN PHASE
PWM
1/8
REF COUNT
CLOCK 447KHz
NTSC
MM
SRCH
TRACKING MM
CTL REC INHIBIT
VSS
V. DRIVE
LATCH
COUNTER
COUNT
RESET
LATCH PWM
TRACKING MM
SP=1/24, LP=1/12 SLP=1/8
V. DRIVE
CTL REC INHIBIT
CH-1 MM
CH-2 MM
PG SEP
SP/LP/SLP
REC
ASSEMBLE
REF
IC609 MSL9378RS VERT. DRIVE PULSE ADDER
DELAY MM 1
MM 3
DELAY MM 2
PG610
CTL PULSE
TEST
CAPST. SPEED
FREE RUN
SW 25 Hz
STBY 5V
CYL. SPEED
GND
ADJUSTMENT TERMINAL
TP601
TP602
TP603
TP604
D605 MA153(MC)
D608 MA152WA (MO)
D609 MA152WK (MU)
Q602 DTC144K(26) REC SW
D607 MA152WK (MU)
D602 MA152WK(MU)
D603 MA152WA (MO)
D604 MA151K (MH)
D601 MA152WK (MU)
RT601 470K-B TRACKING PRESET
D621 MA151K (MH)
Q607 DTC144K (26) REC SW
RT602 220K-B CH-2 PG SHIFTER
RT603 220K-B CH-1 PG SHIFTER
D615 MA151K (MH)
CAPST PHASE
CFG
PB 9V (1B)
TRACKING (2B)
REC (3B)
SEARCH (4B)
STBY 5V (5B)
9V (6B)
LOAD (7B)
REVERSE (8B)
PAUSE (9B)
ASSEMBLE (10B)
ADD. VERT (11B)
CYL. LOCK (12B)
CTL PULSE (13B)
CYL. ON (14B)
GND (15B)
To MAIN (SYS. CON) (1B)-(15B)
D616 MA151K(MH)
RT604 100K-B CYLINDER SPEED
Q601 DTC144K(26) REVERSE SW
IC602 BA6303F CYLINDER SPEED CONTROL
SAW-TOOTH
SAMPLE HOLD
SHAPER
S1
S2
Hi: ON
To MAIN (CYL-/CAPST.- MOTORS DRIVE) (1H)-(10H)
TACH PULSE (1H)
CYL. FG (2H)
CYL. FG (3H)
STBY 5V (4H)
GND (5H)
CYL. SERVO (6H)
CYL SERVO
D619 MA153 (MC)
IC607 µPC358G SPEED CONTROL
IC603 BA6303F CAPSTAN SPEED CONTROL
CAPSTAN SPEED
RT605 100K-B
SAW-TOOTH
SAMPLE HOLD
SHAPER
CFG
CAPST SPEED
CAPST SERVO
CAPST. SERVO (7H)
D613 MA152WK (MU)
Q604 DTC144K (26) SEARCH SW
D620 MA151K (MH)
D612 MA152WA (MO)
IC608 µPD4013BG SEARCH COUNTER
B+
Q1
Q2
CLOCK 2
CLEAR 2
D2
PRESET 2
CLOCK 1
CLEAR 1
D1
PRESET 1
GND
Q603 DTC144K(26) STBY SW
Q606 DTC144K(26) SEARCH SW
CAPST. FG (8H)
CAPST SPEED
12V (9H)
9V (10H)
NOTE: MARK "●" IS LEADLESS (CHIP) COMPONENT.
MAIN(SERVO SECTION) P.C.B
WAVE FORM
REC/PB CYL. SIGNAL
REC CYL. SIGNAL
PB CYL. SIGNAL
REC/PB CAPST. SIGNAL
REC CAPST. SIGNAL
PB CAPST. SIGNAL
1
2
3
4
5
6
7
8
A
B
C
D
E

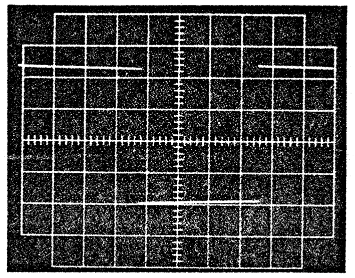

1-A IC601-2 REC/PLAY
1V/1 msec. cm

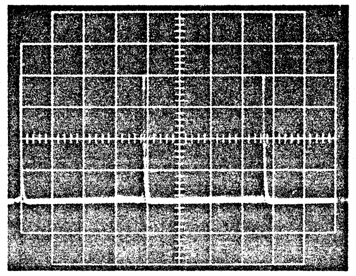

2-A IC601-6 REC/PLAY
1V/1 msec. cm

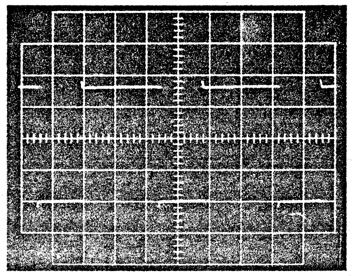

3-A IC601-12 REC/PLAY
1V/10 msec. cm

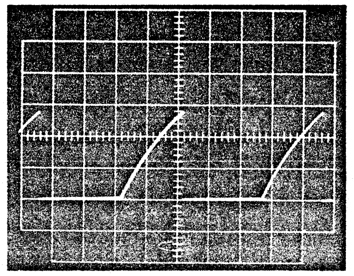

4-A IC601-13 REC/PLAY
1V/10 msec. cm

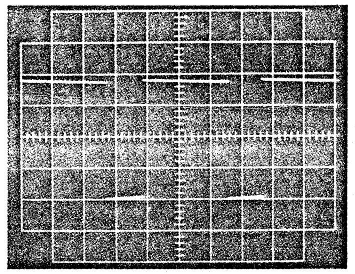

5-A IC601-14 REC/PLAY
1V/10 msec. cm

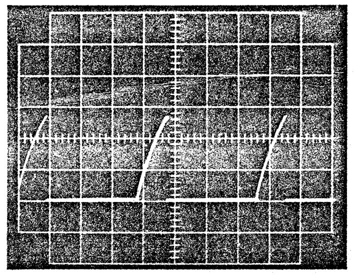

6-A IC601-15 REC/PLAY
1V/5 msec. cm

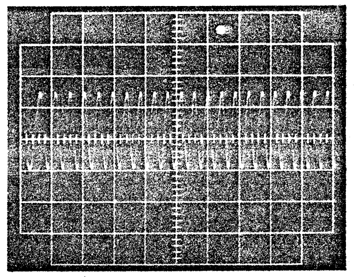

7-A IC601-17 REC/PLAY
0.2V/5 msec. cm

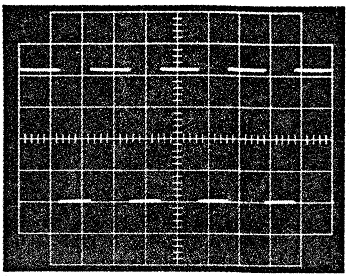

8-A IC601-18 REC
1V/10 msec. cm

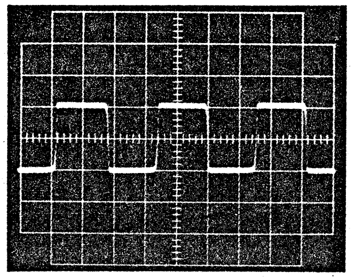

9-A IC601-19 REC/PLAY
1V/10 msec. cm

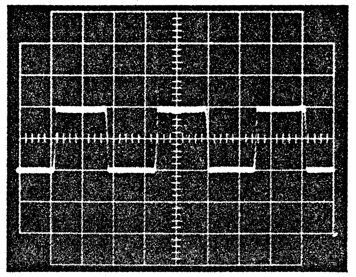

10-A IC601-21 PLAY
1V/10 msec. cm

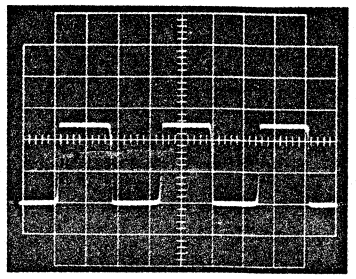

11-A IC601-22 PLAY
1V/10 msec. cm

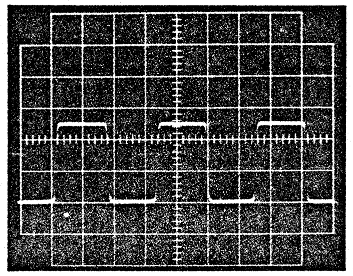

12-A IC601-25 REC/PLAY
0.1V/0.2 μsec. cm

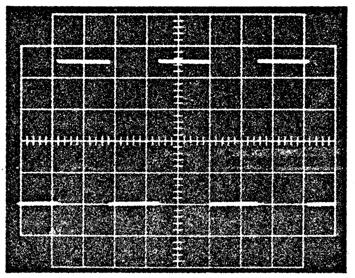

13-A IC601-29 REC/PLAY
1V/0.2 msec. cm

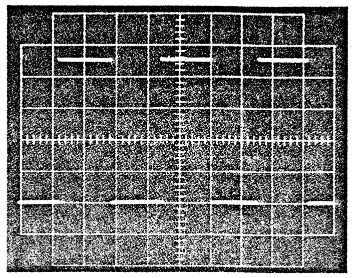

14-A IC602-2 REC/PLAY
50 mV/1 msec. cm

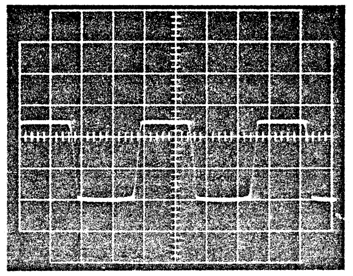

15-A IC602-3 REC/PLAY
50 mV/1 msec. cm

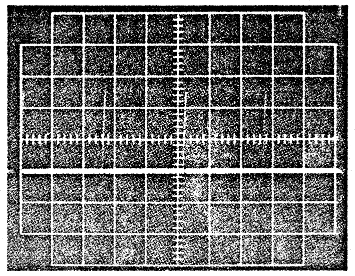

16-A IC602-4 REC/PLAY
1V/1 msec. cm

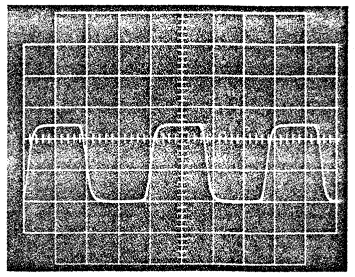

17-A IC602-5 REC/PLAY
1V/1 msec. cm

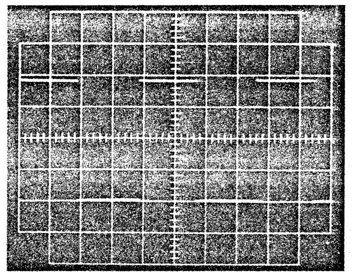

18-A IC602-6 REC/PLAY
1V/1 msec. cm

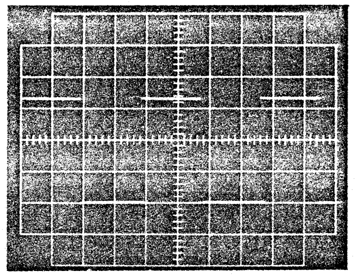

19-A IC602-11 REC/PLAY
1V/1 msec. cm


20-A IC602-12 REC/PLAY
1V/10 msec. cm


21-A IC603-4 REC/PLAY
1V/0.5 msec. cm

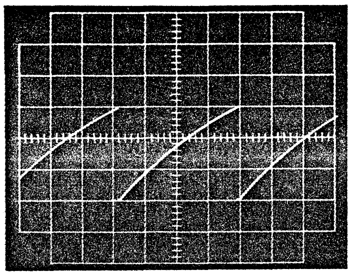

22-A IC603-5 REC/PLAY
1V/0.5 msec. cm


23-A IC603-6 REC/PLAY
1V/0.5 msec. cm

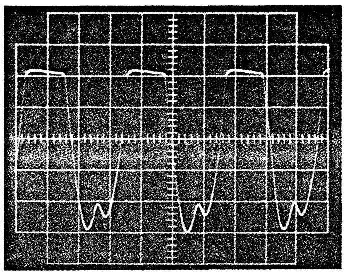

24-A IC603-11 REC/PLAY
1V/0.5 msec. cm

SERVO WAVEFORMS

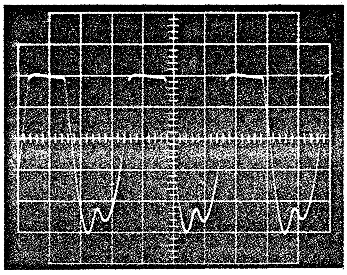
25-A IC603-12 REC/PLAY
1V/0.5 msec. cm



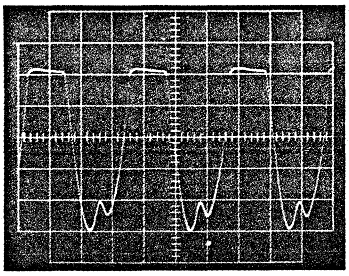
26-A IC605-15 REC/PLAY
1V/2 msec. cm



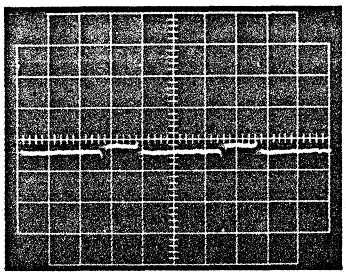
27-A IC605-16 REC/PLAY
1V/2 msec. cm



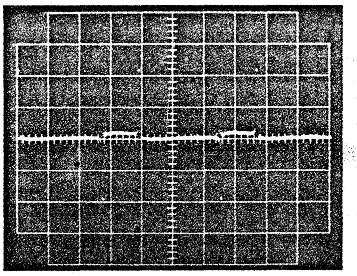
28-A IC605-17 REC/PLAY
1V/2 msec. cm



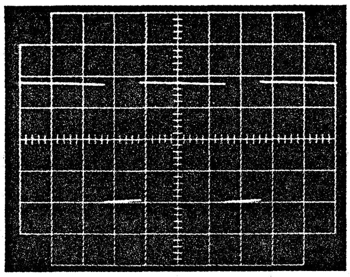
29-A IC606-3 PLAY
0.2V/10 msec. cm



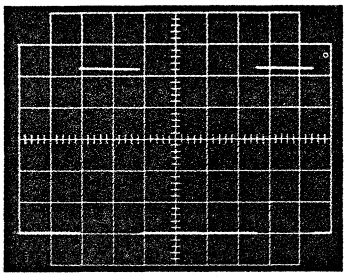
30-A IC606-5 PLAY
0.2V/10 msec. cm



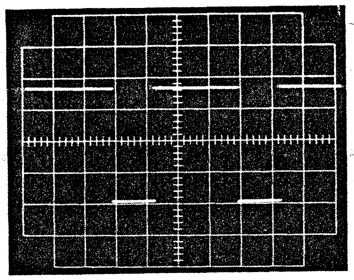
31-A IC606-6 PLAY
1V/10 msec. cm



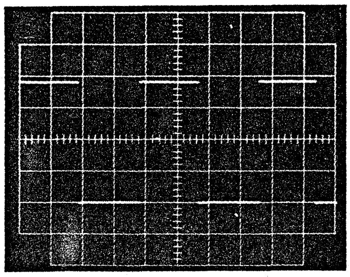
32-A IC608-1 REC/PLAY
1V/0.5 msec. cm



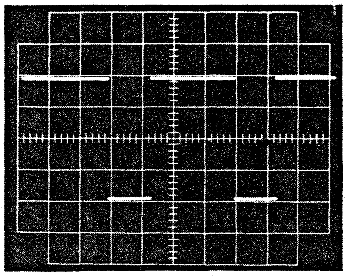
33-A IC608-2 REC/PLAY
1V/1msec.cm



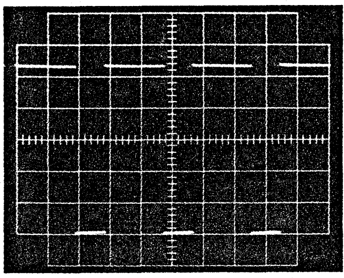
34-A IC608-3 REC/PLAY
1V/0.5 msec. cm



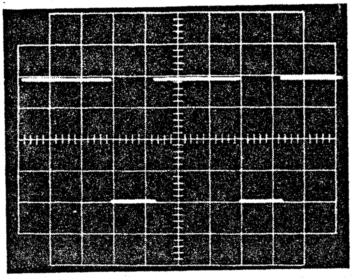
35-A IC608-5 REC/PLAY
1V/1msec.cm



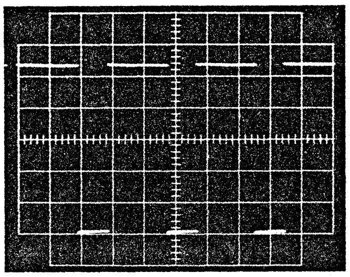
36-A IC608-9 REC/PLAY
1V/2 msec. cm



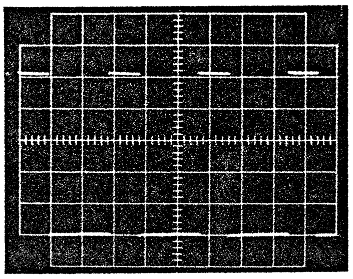
37-A IC608-11 REC/PLAY
1V/1msec.cm



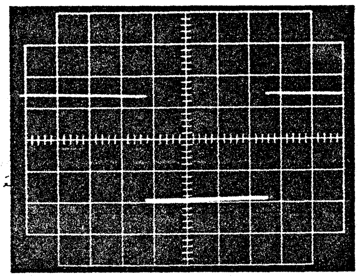
38-A IC608-12 REC/PLAY
1V/2 msec. cm



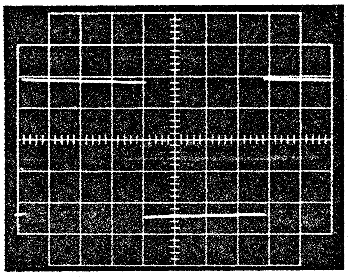
39-A IC608-13 REC/PLAY
1V/2 msec. cm



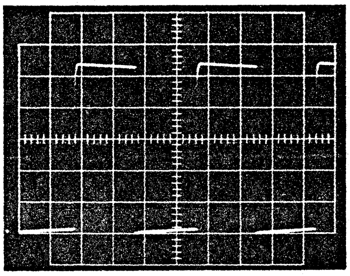
40-A IC609-1 REC/PLAY
0.2V/5 msec. cm



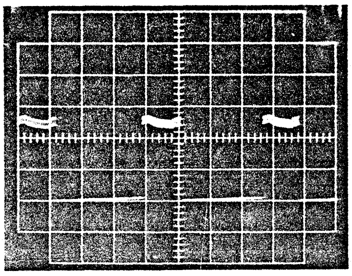
41-A IC610-2 REC/PLAY
1V/5 msec. cm



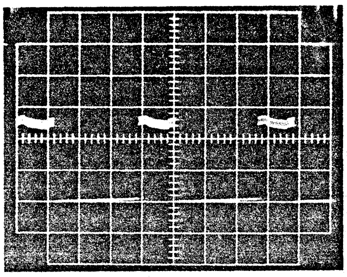
42-A IC610-3 REC/PLAY
1V/10 msec. cm



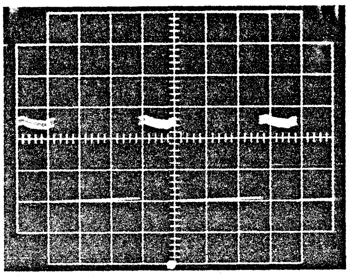
43-A IC610-6 REC
2V/20 msec. cm



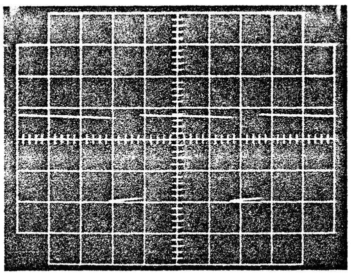
44-A IC610-7 REC
2V/20 msec. cm



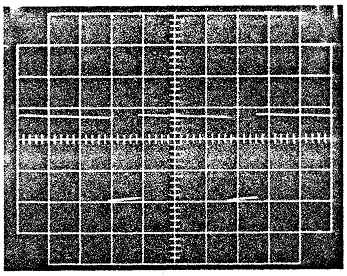
45-A IC610-8 REC
2V/20 msec. cm



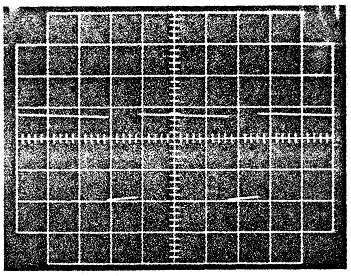
43-B IC610-6 PLAY
2V/20 msec. cm



44-B IC610-7 PLAY
2V/20 msec. cm

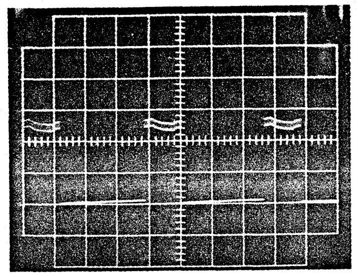


45-B IC610-8 PLAY
2V/20 msec. cm

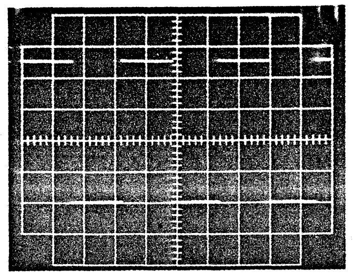


SERVO WAVEFORMS

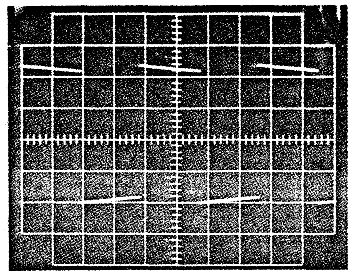
46-A IC610-9 REC
2V/20 msec. cm



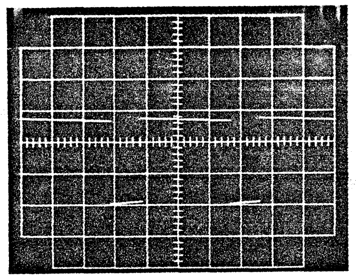
47-A IC610-17 REC/PLAY
1V/1 msec. cm



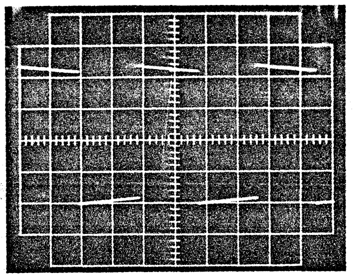
48-A IC610-19 REC
1V/20 msec. cm



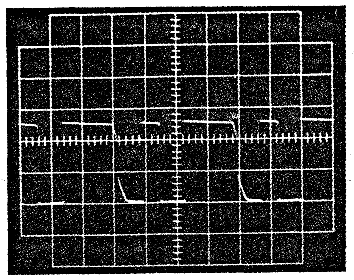
46-B IC610-9 PLAY
2V/20 msec. cm



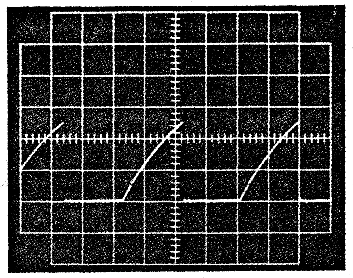
48-B IC610-19 PLAY
1V/20 msec. cm



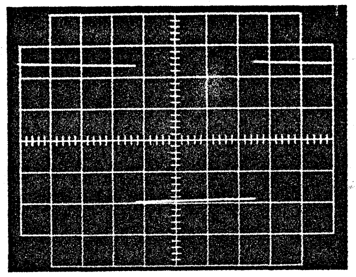
49-A PG610-1 REC
1V/10 msec. cm



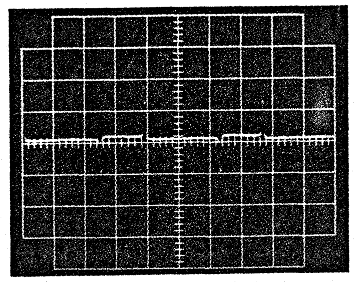
50-A PG610-3 REC/PLAY
1V/10 msec. cm



51-A PG610-5 REC/PLAY
1V/5 msec. cm

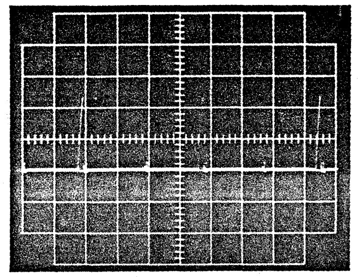


49-B PG610-1 PLAY
0.5V/10 msec. cm

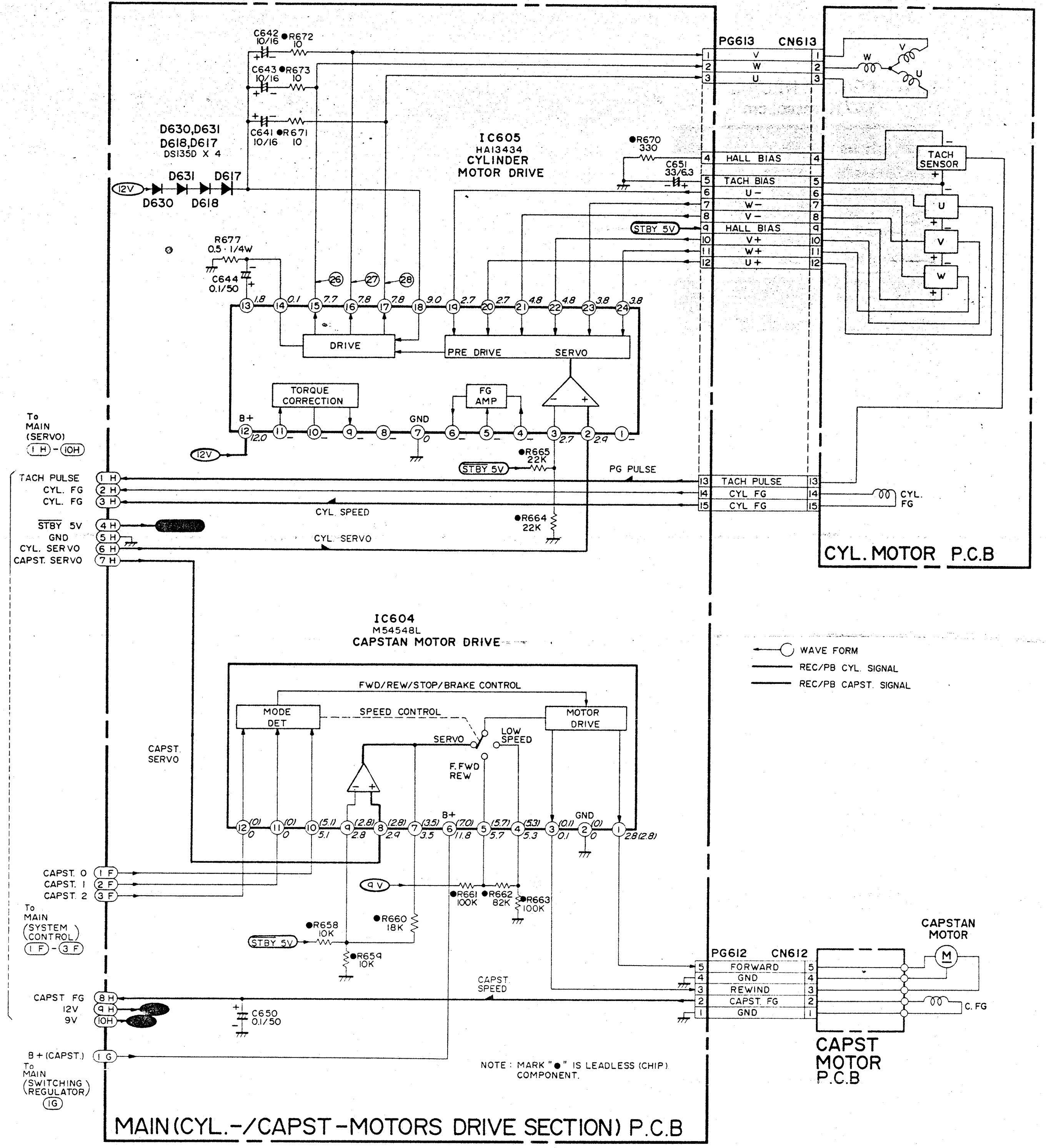


SERVO WAVEFORMS

52-A PG610-7 REC/PLAY
1V/10 msec. cm

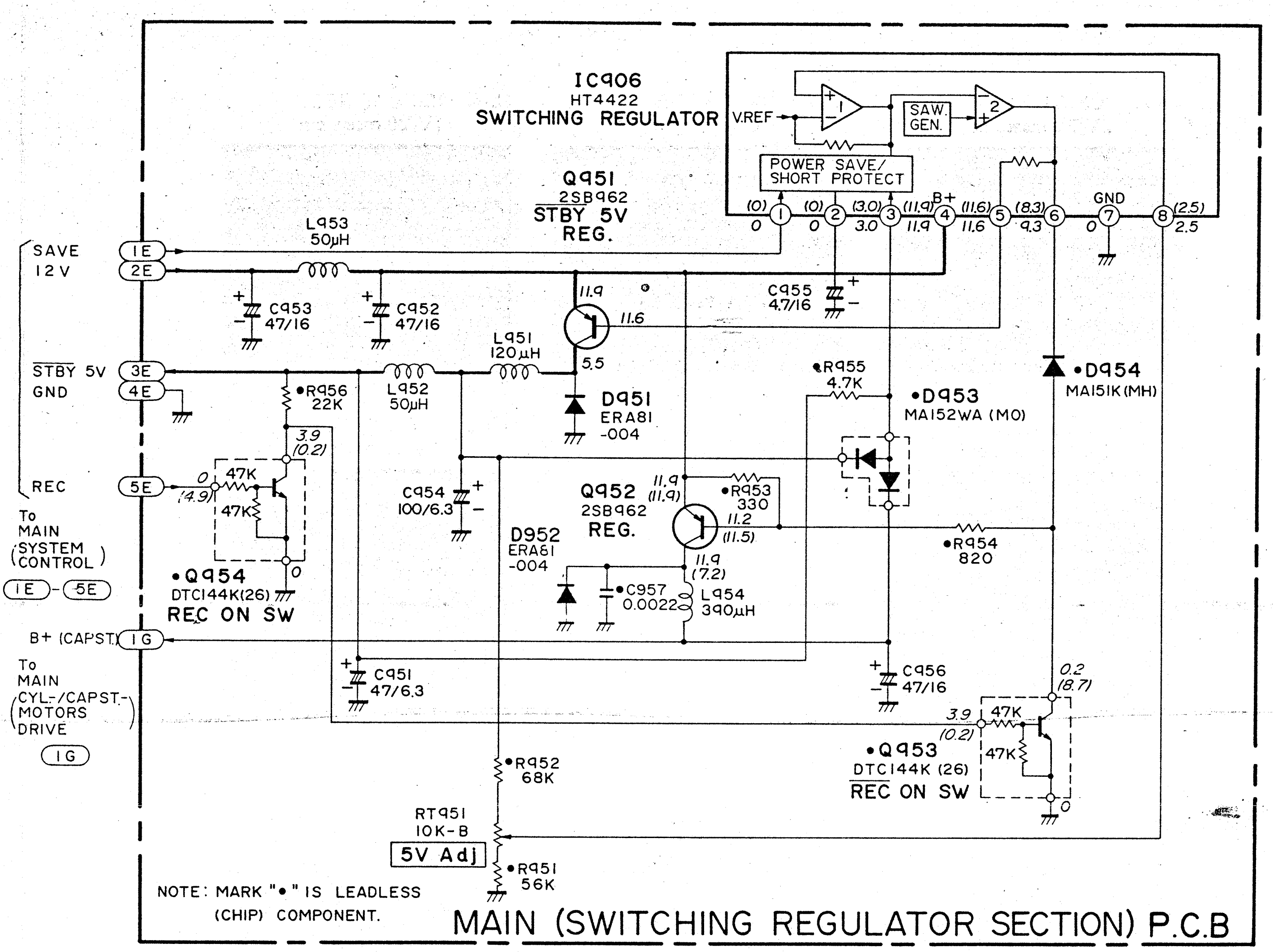


CYL. –/CAPST. – MOTORS DRIVE SCHEMATIC DIAGRAM


C642 10/16
R672 10
C643 10/16
R673 10
C641 10/16
R671 10
D630,D631
D618,D617
DS135D X 4
12V
D631
D617
D630
D618
IC605
HA13434
CYLINDER
MOTOR DRIVE
R670 330
C651 33/6.3
R677 0.5 · 1/4W
C644 0.1/50
DRIVE
PRE DRIVE
SERVO
TORQUE CORRECTION
FG AMP
B+
GND
STBY 5V
R665 22K
R664 22K
PG PULSE
CYL. SPEED
CYL. SERVO
To MAIN (SERVO) 1H - 10H
TACH PULSE
CYL. FG
CYL. FG
STBY 5V
GND
CYL. SERVO
CAPST. SERVO
PG613
CN613
V
W
U
HALL BIAS
TACH BIAS
U –
W –
V –
HALL BIAS
V +
W +
U +
TACH PULSE
CYL FG
CYL FG
TACH SENSOR
CYL. FG
CYL. MOTOR P.C.B
IC604
M54548L
CAPSTAN MOTOR DRIVE
FWD/REW/STOP/BRAKE CONTROL
MODE DET
SPEED CONTROL
MOTOR DRIVE
SERVO
LOW SPEED
F.FWD REW
CAPST. SERVO
CAPST. 0
CAPST. 1
CAPST. 2
To MAIN (SYSTEM CONTROL) 1F - 3F
9V
R661 100K
R662 82K
R663 100K
R660 18K
R658 10K
R659 10K
CAPST FG
12V
9V
C650 0.1/50
CAPST SPEED
B+ (CAPST.)
To MAIN (SWITCHING REGULATOR) 1G
PG612
CN612
FORWARD
GND
REWIND
CAPST. FG
GND
CAPSTAN MOTOR
C. FG
CAPST MOTOR P.C.B
WAVE FORM
REC/PB CYL. SIGNAL
REC/PB CAPST. SIGNAL
MAIN (CYL.-/CAPST-MOTORS DRIVE SECTION) P.C.B

NOTE : MARK "●" IS LEADLESS (CHIP) COMPONENT.

SWITCHING REGULATOR SCHEMATIC DIAGRAM


IC906
HT4422
SWITCHING REGULATOR
V.REF
SAW. GEN.
POWER SAVE/ SHORT PROTECT
B+
GND
Q951
2SB962
STBY 5V REG.
SAVE 12V
STBY 5V
GND
REC
To MAIN (SYSTEM CONTROL) 1E - 5E
B+ (CAPST.)
To MAIN (CYL.-/CAPST.-MOTORS DRIVE) 1G
L953 50µH
C953 47/16
C952 47/16
L951 120µH
L952 50µH
D951 ERA81 -004
C955 4.7/16
R955 4.7K
D953 MA152WA (MO)
D954 MA151K (MH)
R956 22K
Q954 DTC144K(26) REC ON SW
C954 100/6.3
Q952 2SB962 REG.
R953 330
D952 ERA81 -004
C957 0.0022
L954 390µH
R954 820
C951 47/6.3
C956 47/16
Q953 DTC144K (26) REC ON SW
R952 68K
RT951 10K-B
5V Adj
R951 56K
MAIN (SWITCHING REGULATOR SECTION) P.C.B

NOTE: MARK "●" IS LEADLESS (CHIP) COMPONENT.

SCHEMATIC	PAGE
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PRE PROCESS	169
VIDEO PROCESS	185
DEFLECTION	190
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CAMERA SW	204
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AUTO FOCUS	212
SYSTEM CONTROL	217
SERVO	219
CYL.–/CAPST. –MOTORS DRIVE	227
SWITCHING REGULATOR	228
LUMA/CHROMA	229
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AUDIO	248
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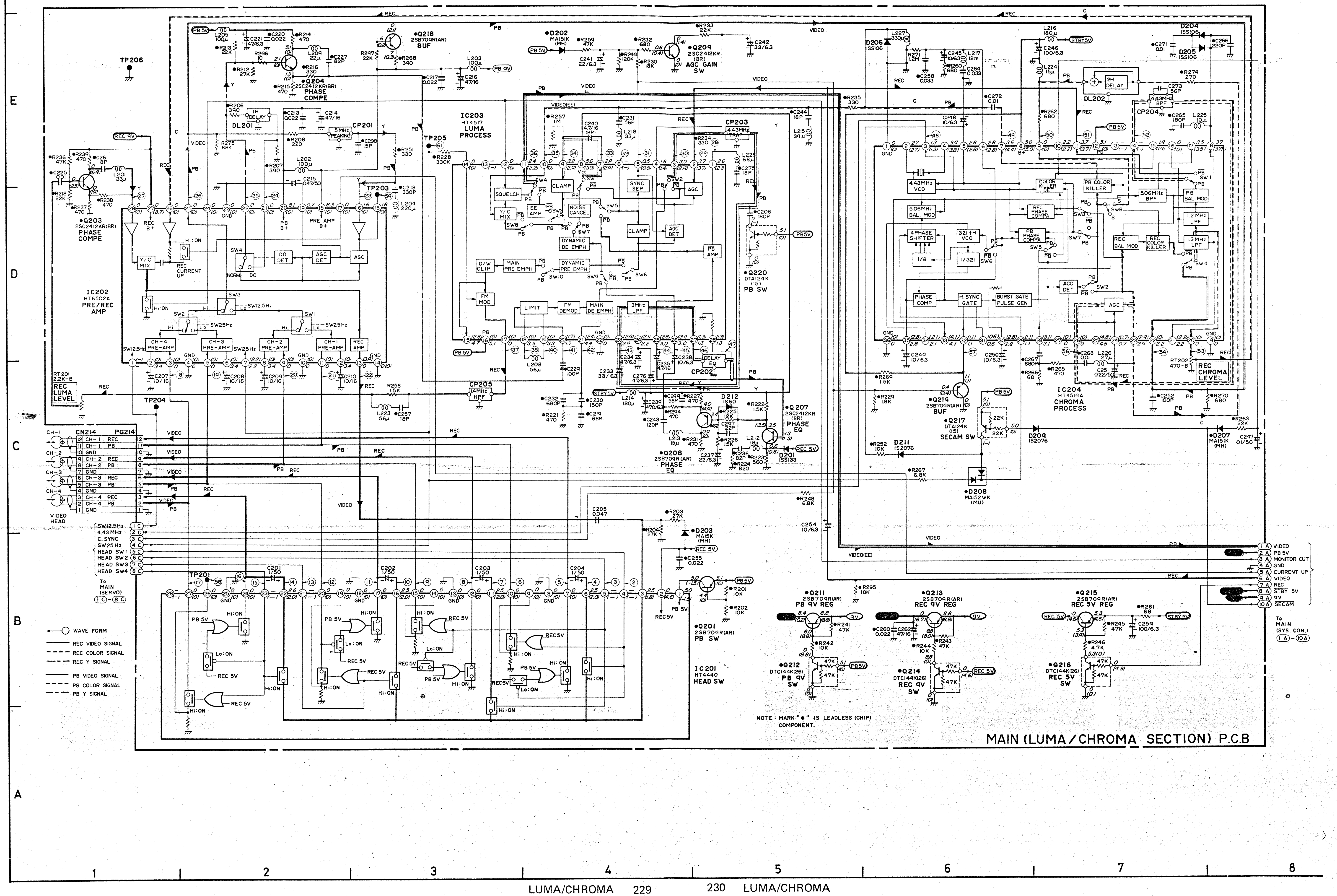
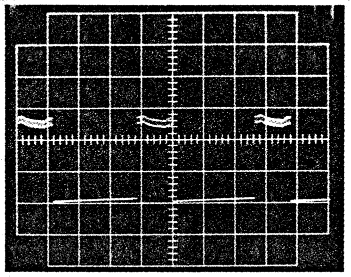
LUMA/CHROMA SCHEMATIC DIAGRAM

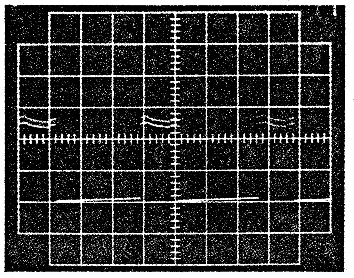

MAIN (LUMA/CHROMA SECTION) P.C.B
IC202 HT6502A PRE/REC AMP
IC203 HT4517 LUMA PROCESS
IC204 HT4519A CHROMA PROCESS
IC201 HT4440 HEAD SW
Q203 2SC2412K(BR) PHASE COMPE
Q204 2SC2412KR(BR) PHASE COMPE
Q218 2SB709R(AR) BUF
Q209 2SC2412KR (BR) AGC GAIN SW
Q220 DTA124K (15) PB SW
Q207 2SC2412KR (BR) PHASE EQ
Q208 2SB704R(AR) PHASE EQ
Q219 2SB709R(AR) BUF
Q217 DTA124K (15) SECAM SW
Q201 2SB709R(AR) PB SW
Q211 2SB709R(AR) PB 9V REG
Q212 DTC144K(26) PB 9V SW
Q213 2SB709R(AR) REC 9V REG
Q214 DTC144K(26) REC 9V SW
Q215 2SB709R(AR) REC 5V REG
Q216 DTC144K(26) REC 5V SW
D202 MA151K (MH)
D203 MA151K (MH)
D204 1SS106
D205 1SS106
D206 1SS106
D207 MA151K (MH)
D208 MA152WK (MU)
D209 1S2076
D211 1S2076
D201 1SS133
D212 1K60
DL201 1H DELAY
DL202 2H DELAY
CP201 5MHz PEAKING
CP202 DELAY EQ
CP203 4.43MHz TRAP
CP204 4.43MHz BPF
CP205 14MHz HPF
TP201
TP203
TP204
TP205
TP206
RT201 2.2K-B REC LUMA LEVEL
RT202 470-B REC CHROMA LEVEL
CN214
PG214
CH-1 REC
CH-1 PB
GND
CH-2 REC
CH-2 PB
CH-3 REC
CH-3 PB
CH-4 REC
CH-4 PB
VIDEO HEAD
SW12.5Hz
4.43MHz
C.SYNC
SW25Hz
HEAD SW1
HEAD SW2
HEAD SW3
HEAD SW4
To MAIN (SERVO) (1C)-(8C)
VIDEO
PB 5V
MONITOR CUT
GND
CURRENT UP
VIDEO
REC
STBY 5V
9V
SECAM
To MAIN (SYS. CON.) (1A)-(10A)
CH-4 PRE-AMP
CH-3 PRE-AMP
CH-2 PRE-AMP
CH-1 PRE-AMP
REC AMP
Y/C MIX
DO DET
AGC DET
AGC
REC CURRENT UP
SQUELCH
CLAMP
SYNC SEP
EE AMP
NOISE CANCEL
DYNAMIC DE EMPH
MAIN PRE EMPH
DYNAMIC PRE EMPH
D/W CLIP
FM MOD
LIMIT
FM DEMOD
MAIN DE EMPH
3MHz LPF
PB AMP
4.43MHz VCO
5.06MHz BAL. MOD
4PHASE SHIFTER
1/8
321fH VCO
1/321
PHASE COMP
H. SYNC GATE
BURST GATE PULSE GEN
ACC DET
COLOR KILLER DET
PB COLOR KILLER
REC PHASE COMPA
PB PHASE COMPA
5.06MHz BPF
PB BAL. MOD
1.2MHz LPF
1.3MHz LPF
REC BAL. MOD
REC COLOR KILLER
WAVE FORM
REC VIDEO SIGNAL
REC COLOR SIGNAL
REC Y SIGNAL
PB VIDEO SIGNAL
PB COLOR SIGNAL
PB Y SIGNAL
E
D
C
B
A
1
2
3
4
5
6
7
8

NOTE : MARK "●" IS LEADLESS (CHIP) COMPONENT.

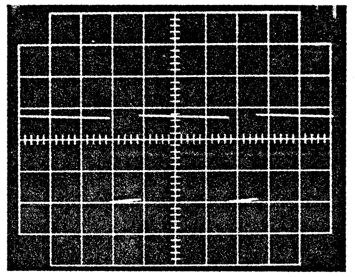
2-A IC201-4 REC
2V/20 msec. cm



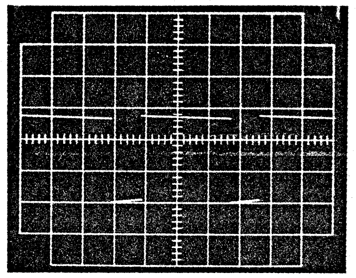
3-A IC201-5 REC
2V/20 msec. cm



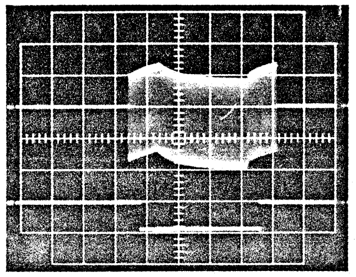
2-B IC201-4 PLAY
2V/20 msec. cm



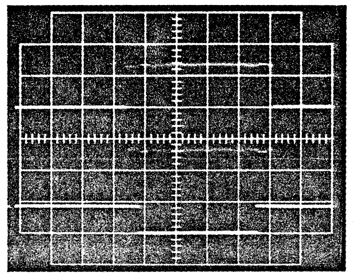
3-B IC201-5 PLAY
2V/20 msec. cm



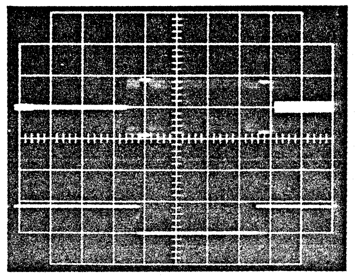
4-A IC201-6 REC
1V/5 msec. cm



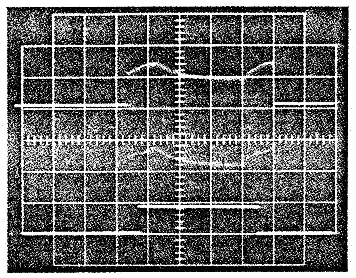
5-A IC201-7 REC
1V/5 msec. cm



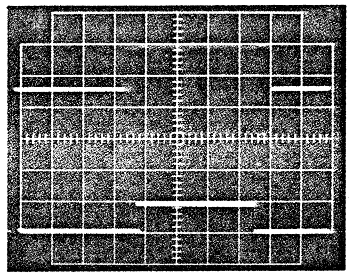
6-A IC201-10 REC
0.1V/5 msec. cm



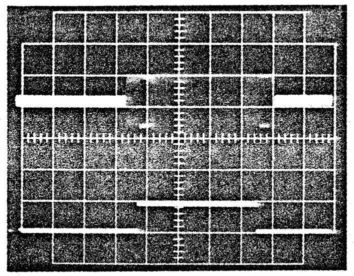
7-A IC201-11 REC
1V/5 msec. cm



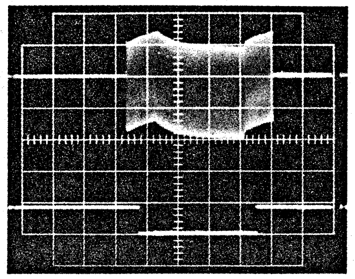
8-A IC201-12 REC
1V/5 msec. cm



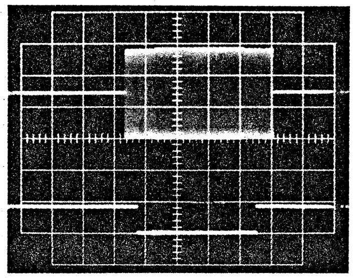
9-A IC201-15 REC
0.1V/5 msec. cm



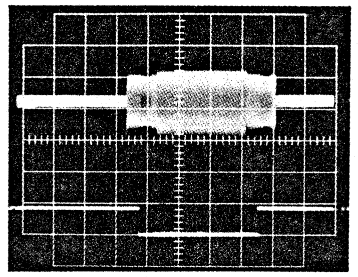
10-A IC201-16 REC
1V/5 msec. cm



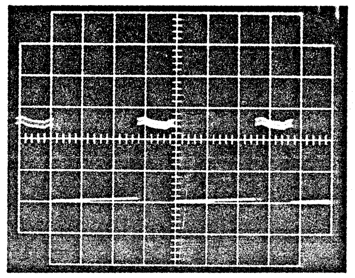
11-A IC201-17 REC
1V/5 msec. cm



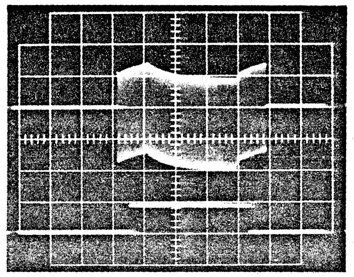
12-A IC201-20 REC
0.1V/5 msec. cm



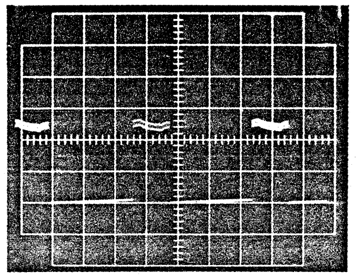
13-A IC201-21 REC
2V/20 msec. cm



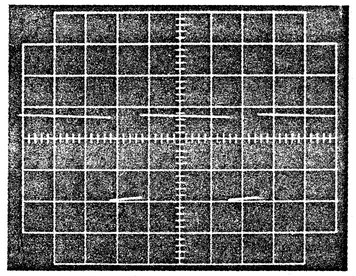
14-A IC201-22 REC
1V/5 msec. cm



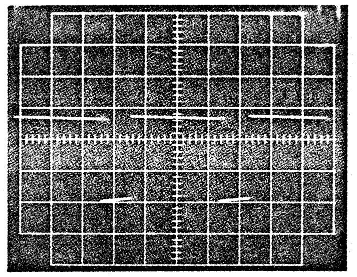
15-A IC201-23 REC
2V/20 msec. cm



13-B IC201-21 PLAY
2V/20 msec. cm

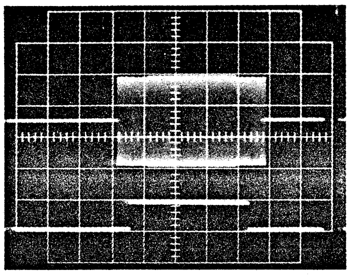


15-B IC201-23 PLAY
2V/20 msec. cm

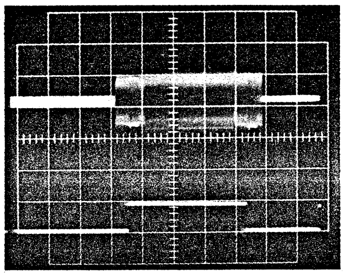


LUMA/CHROMA WAVEFORMS

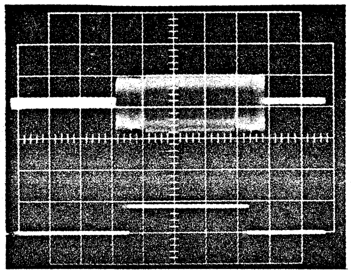
16-A IC201-24 REC
1V/5 msec. cm



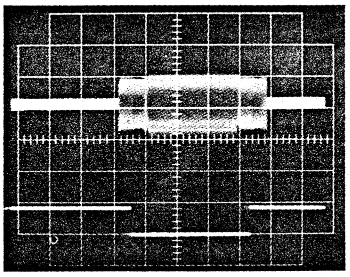
17-A IC201-27 REC
0.1V/5 msec. cm



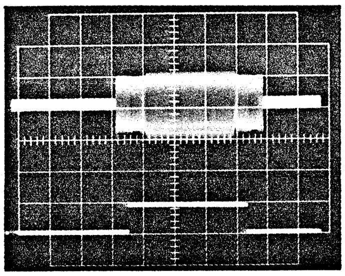
18-A IC202-3 REC
0.1V/5 msec. cm



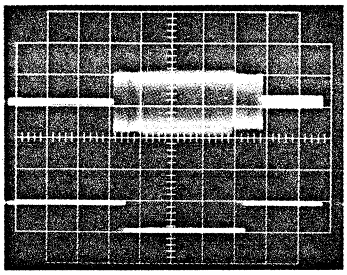
19-A IC202-5 REC
0.1V/5 msec. cm



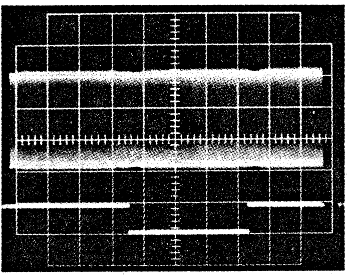
20-A IC202-9 REC
0.1V/5 msec. cm



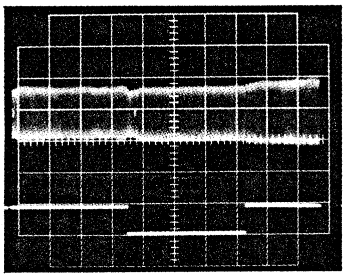
21-A IC202-11 REC
0.1V/5 msec. cm



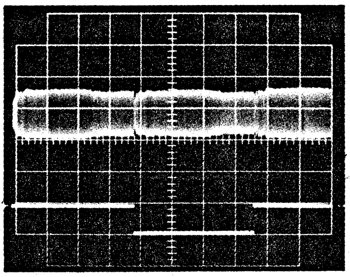
22-A IC202-13 REC
1V/5 msec. cm



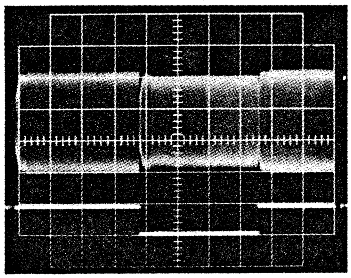
23-A IC202-16 PLAY
10 mV/5 msec. cm



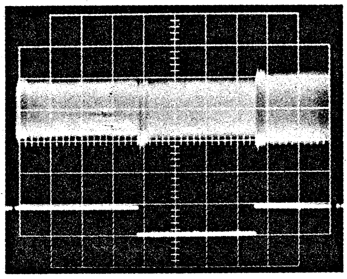
24-A IC202-21 PLAY
50 mV/5 msec. cm



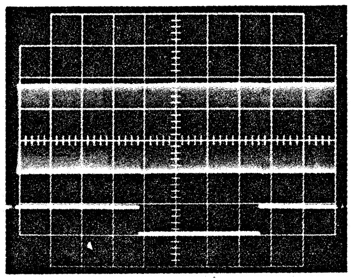
25-A IC202-22 PLAY
0.2V/5 msec. cm



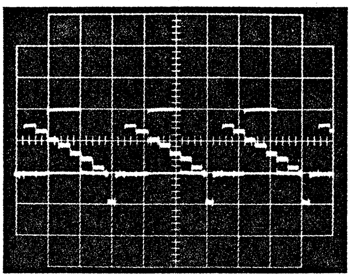
26-A IC202-25 PLAY
50 mV/5 msec. cm



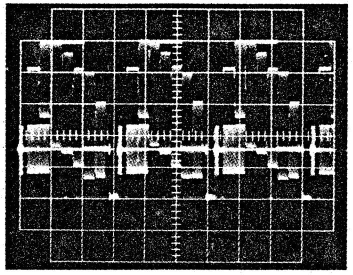
27-A IC202-28 REC
0.1V/5 msec. cm



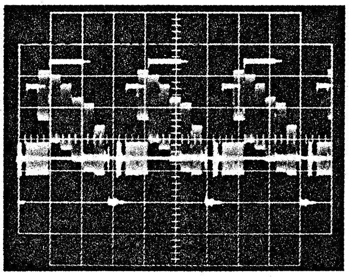
28-A IC203-1 REC
0.1V/20 μsec. cm



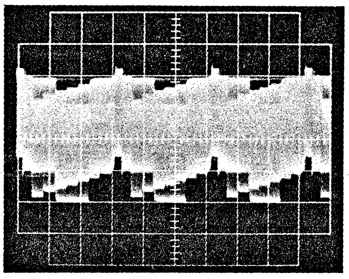
29-A IC203-2 REC
0.2V/20 μsec. cm



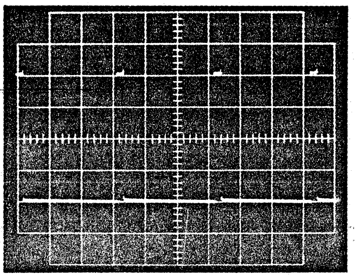
30-A IC203-3 REC
50 mV/20 μsec. cm



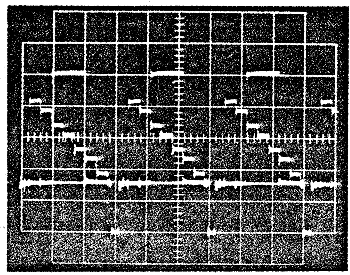
30-B IC203-3 PLAY
0.1V/20 μsec. cm



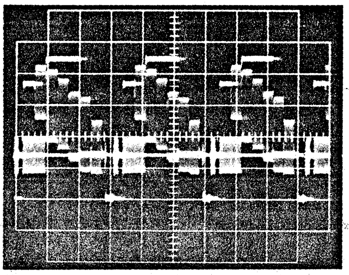
31-A IC203-5 REC/PLAY
1V/20 μsec. cm



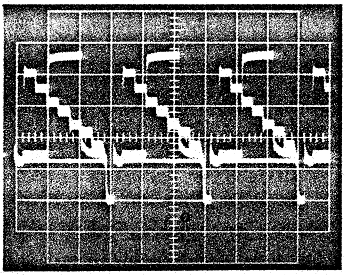
32-A IC203-6 REC/PLAY
0.2V/20 μsec. cm



33-A IC203-7 REC
50 mV/20 μsec. cm

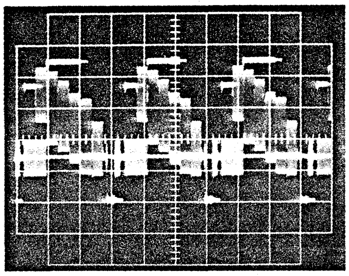


33-B IC203-7 PLAY
0.2V/20 μsec. cm

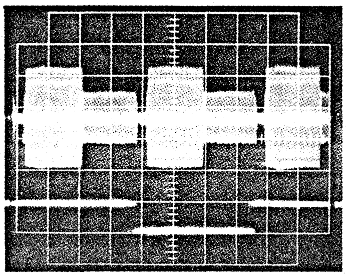


LUMA/CHROMA WAVEFORMS

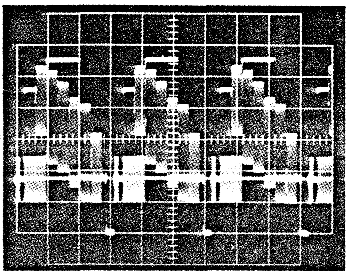
34-A IC203-9 REC
50 mV/20 μsec. cm



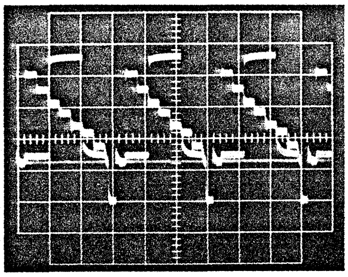
35-A IC203-10 PLAY
50 mV/5 msec. cm



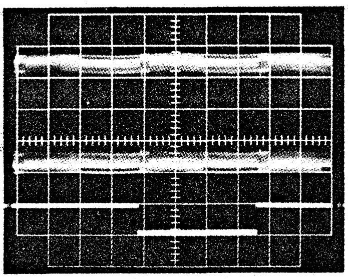
36-A IC203-11 REC/PLAY
0.2V/20 μsec. cm



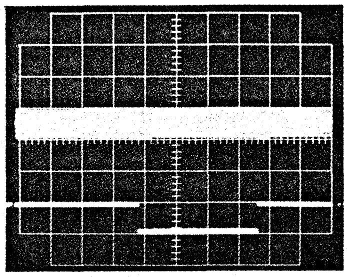
34-B IC203-9 PLAY
0.2V/20 μsec. cm



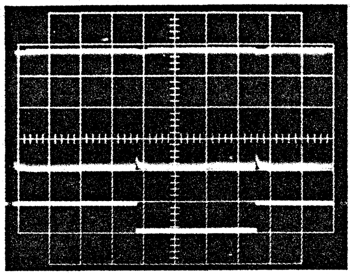
37-A IC203-17 REC/PLAY
0.2V/5 msec. cm



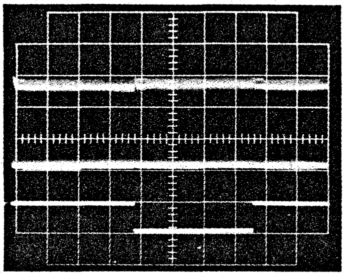
38-A IC203-18 REC
50 mV/5 msec. cm



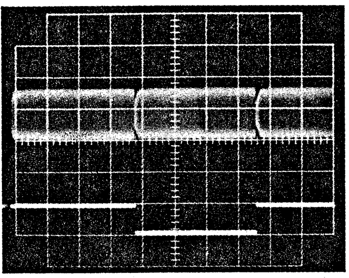
40-A IC203-19 PLAY
0.2V/5 msec. cm



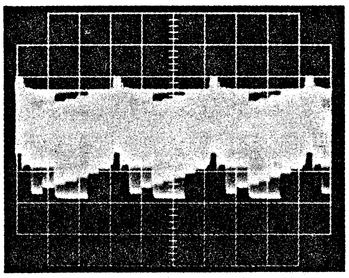
38-B IC203-18 PLAY
0.2V/5 msec. cm



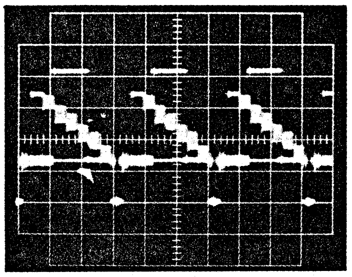
41-A IC203-20 PLAY
0.2V/5 msec. cm



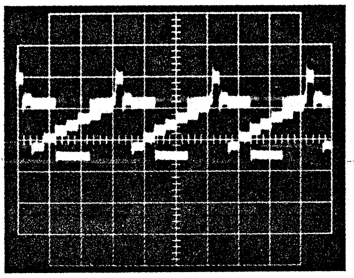
42-A IC206-21 PLAY
0.1V/20 µsec. cm



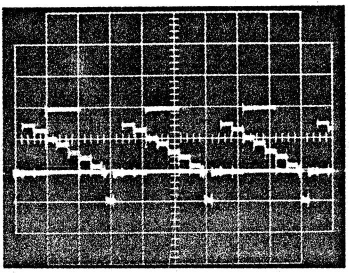
43-A IC203-23 REC
50 mV/20 µsec. cm



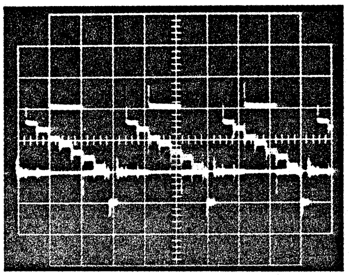
43-B IC203-23 PLAY
50 mV/20 µsec. cm



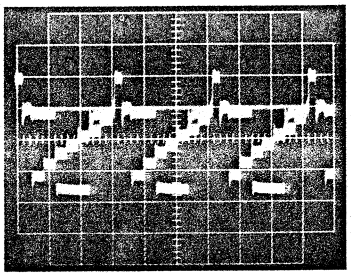
44-A IC203-25 REC
0.1V/20 µsec. cm



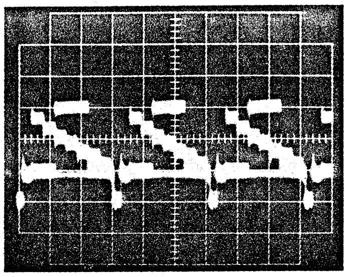
46-A IC203-27 REC
0.1V/20 µsec. cm



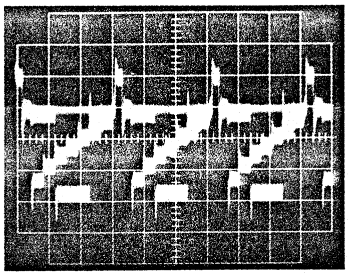
44-B IC203-25 PLAY
50 mV/20 µsec. cm



45-B IC203-26 PLAY
0.1V/20 µsec. cm

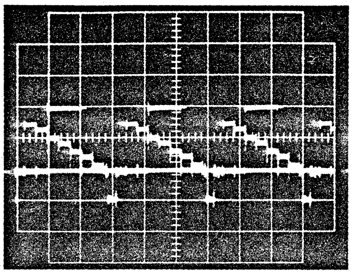


46-B IC203-27 PLAY
50 mV/20 µsec. cm

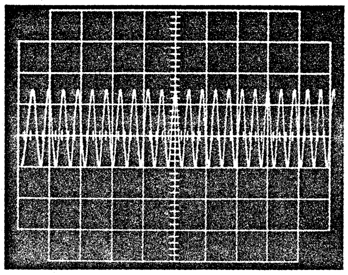


LUMA/CHROMA WAVEFORMS

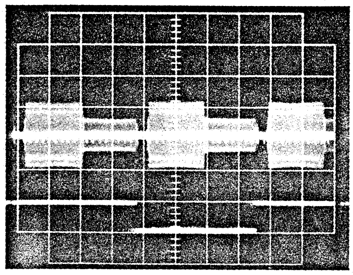
47-A IC203-28 REC
0.1V/20 μsec. cm

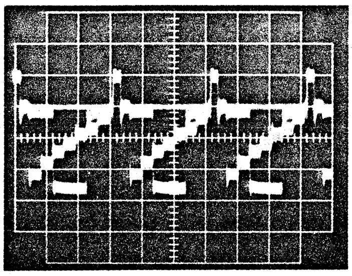


48-A IC204-3 PLAY
0.1V/0.5 μsec. cm

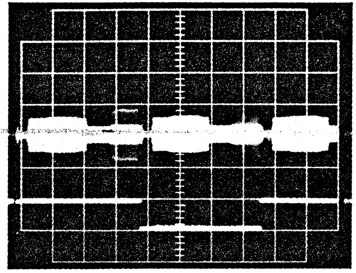


49-A IC204-7 PLAY
0.1V/5 msec. cm

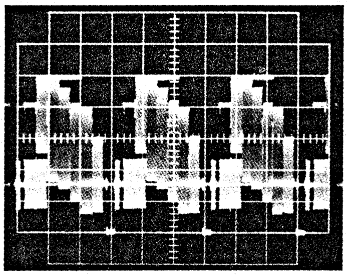




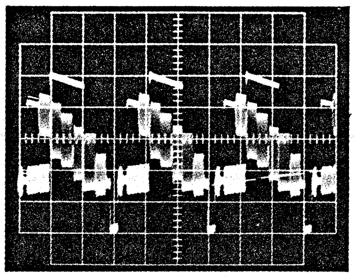
50-A IC204-9 PLAY
0.1V/5 msec. cm



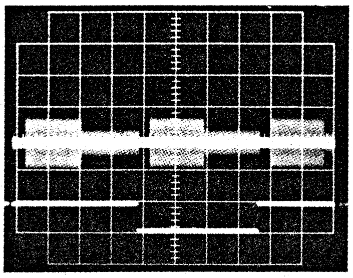
51-A IC204-11 REC
0.2V/20 μ sec. cm



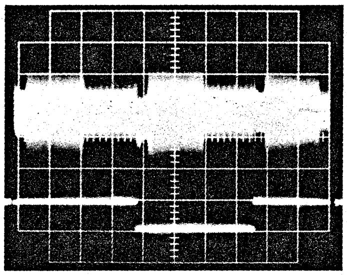
52-A IC204-14 REC
0.2V/20 μ sec. cm



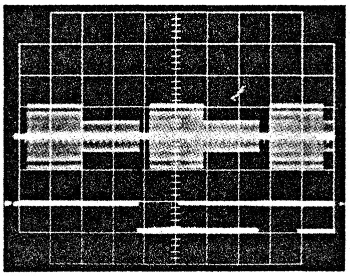
53-A IC204-20 REC
50 mV/5 msec. cm



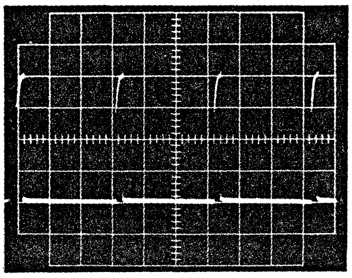
54-A IC204-22 PLAY
50 mV/5 msec. cm



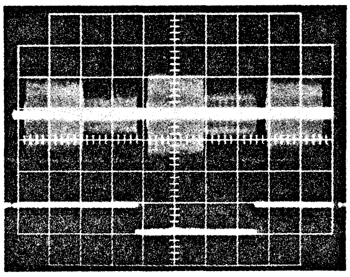
56-A IC204-26 REC
0.1V/5 msec. cm



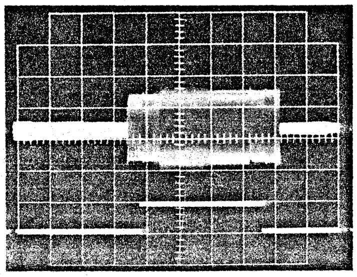
57-A IC204-32 REC/PLAY
1V/20 μsec. cm



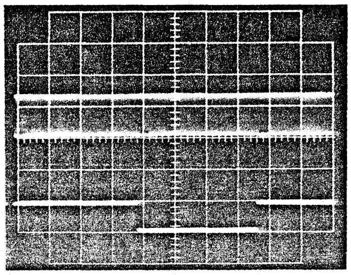
56-B IC204-26 PLAY
50 mV/5 msec. cm



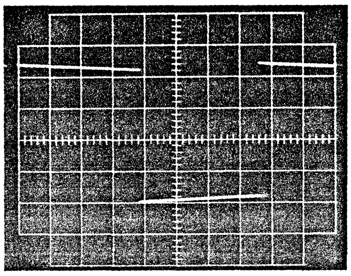
58-A TP201 REC
50 mV/5 msec. cm



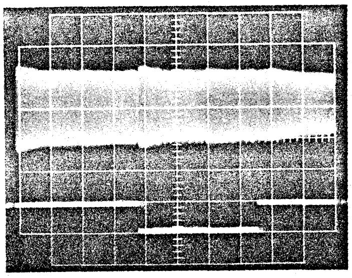
59-A TP203 REC
50 mV/5 msec. cm



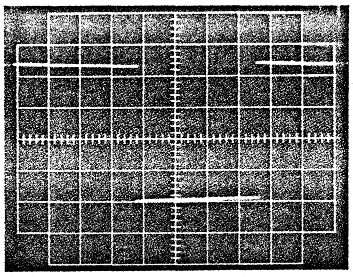
60-A TP204 REC/PLAY
1V/10 msec. cm



59-B TP203 PLAY
50 mV/5 msec. cm



61-A TP205 REC/PLAY
1V/5 msec. cm



MAIN (SYSTEM CONTROL, SWITCHING REGULATOR, SERVO, CYL.–/CAPST.–MOTORS DRIVE, LUMA/CHROMA) CIRCUIT BOARD DIAGRAM

IC201

1	5.0(-1.5)	15	0(0)
2	0(4.6)	16	2[illegible](2.0)
3	2.5(1.8)	17	0(0)
4	-(-)	18	0(0)
5	-(-)	19	0(0)
6	2.5(2.0)	20	0(0)
7	0(0)	21	-(-)
8	0(0)	22	2[illegible](2.0)
9	0(0)	23	[illegible]-)
10	0(0)	24	[illegible]0)
11	2.5(2.0)	25	[illegible]0)
12	0(0)	26	[illegible]0)
13	0(0)	27	[illegible]0)
14	0(0)	28	

IC202

1	-(-)	15	1.8(0)
2	3.4(0)	16	1.6(0)
3	0(0)	17	0(0)
4	0(0)	18	8.3(0)
5	0(0)	19	0.7(0)
6	3.4(0)	20	8.1(0)
7	2.2(2.2)	21	0(0)
8	3.4(0)	22	0(0)
9	0(0)	23	0(0)
10	0(0)	24	0(0)
11	0(0)	25	0(0)
12	3.4(0)	26	0(0)
13	0(3.9)	27	0(8.7)
14	0(0)	28	0(0)

IC203

1	2.6(2.1)	15	4.7(2.6)
2	3.7(3.7)	16	5.1(0)
3	3.0(2.9)	17	0(0)
4	1.6(1.4)	18	3.3(0)
5	0.5(0.5)	19	3.3(0)
6	-(-)	20	1.7(1.7)
7	2.9(2.9)	21	4.4(2.4)
8	5.0(5.0)	22	0(0)
9	3.2(2.9)	23	2.9(2.9)
10	0(0)	24	2.2(2.1)
11	2.4(2.2)	25	3.0(2.8)
12	0(0)	26	3.0(3.1)
13	-(-)	27	1.3(1.3)
14	0(0)	28	1.3(1.3)

IC204

1	0(0)	13	0(0)	25	0.7(0.7)
2	2.7(2.7)	14	0(0)	26	0(0)
3	0(0)	15	3.0(3.0)	27	0(0)
4	3.9(3.8)	16	3.0(3.0)	28	5.0(5.0)
5	0(0)	17	3.5(3.5)	29	2.2(2.2)
6	2.8(2.8)	18	4.0(4.0)	30	2.8(2.8)
7	0(0)	19	0(0)	31	0.6(0.6)
8	5.0(5.0)	20	0(0)	32	0.5(0.5)
9	0(0)	21	2.2(2.2)	33	4.1(4.1)
10	2.2(2.2)	22	2.2(1.3)	34	2.1(2.1)
11	3.7(3.7)	23	0.8(0.8)	35	2.8(2.8)
12	5.1(0)	24	0(0)	36	0(0)

IC601

1	-(-)	11	1.3(1.4)	21	2.2(2.2)
2	2.6(2.6)	12	0(0)	22	0.4(0.8)
3	0(0)	13	0(0)	23	0(0)
4	2.0(2.0)	14	1.3(1.3)	24	0(0)
5	2.3(2.3)	15	2.2(2.2)	25	2.2(2.1)
6	2.2(2.2)	16	5.3(5.3)	26	5.3(5.3)
7	0(4.4)	17	0.3(0.3)	27	0(0)
8	-(-)	18	0.4(2.9)	28	0(0)
9	0(0)	19	0.8(0.8)	29	2.6(2.6)
10	2.3(2.3)	20	0(0)	30	-(-)

IC608

1	1.7	8	0
2	5.3	9	3.4
3	2.5	10	0.5
4	0.5	11	5.3
5	5.3	12	3.5
6	0	13	1.6(3.4)
7	0	14	5.3

IC609

1	2.2(0)
2	0(0)
3	0(0)
4	0(0)
5	0.1(0.2)
6	0.2(0.2)
7	0.1(0.2)
8	8.0(10.2)

IC603

1	0	9	2.5
2	1.3	10	2.7
3	1.3	11	[illegible]
4	1.3	12	[illegible]
5	1.3	13	2.8
6	2.5	14	2.7
7	0	15	2.7
8	0	16	[illegible]3

IC604

1	2.8(2.8)	7	3.5(3.5)
2	0(0)	8	2.9(2.8)
3	0.1(0.1)	9	2.8(2.8)
4	5.3(5.3)	10	5.1(5.1)
5	5.7(5.7)	11	0(0)
6	11.8(7.0)	12	0(0)

IC605

1	-	13	1.8
2	2.9	14	0.1
3	2.7	15	7.7
4	-	16	7.8
5	-	17	7.8
6	-	18	10.5
7	0	19	2.7
8	-	20	2.7
9	-	21	4.8
10	-	22	4.8
11	-	23	3.8
12	12.0	24	3.8

IC606

1	1.3(0.9)
2	1.3(1.6)
3	1.3(1.6)
4	0(0)
5	1.9(1.9)
6	2.2(2.2)
7	5.3(5.3)
8	5.3(5.3)

IC607

1	2.9
2	2.7
3	2.7
4	0
5	2.7
6	2.7
7	2.9
8	5.3

IC903

1	8.9
2	12.0
3	0
4	0
5	0
6	0
7	0
8	12.0
9	8.9

IC904

1	-
2	0.6
3	0.6
4	3.8
5	0
6	-
7	1.6
8	0
9	5.1

IC901

1	0(0)	9	5[illegible](5.0)	17	1.8(1.8)	25	5.0(5.0)	33	2.3(0)	41	0.3(0.3)	49	5.0(5.0)	57	0(0)
2	0(0)	10	[illegible](3.5)	18	5.0(5.0)	26	5.1(5.1)	34	2.2(2.2)	42	0.3(0.3)	50	5.0(5.0)	58	0(0)
3	0(0)	11	5[illegible](5.0)	19	5.0(5.0)	27	0(0)	35	2.5(2.5)	43	0(0)	51	0(0)	59	0(5.0)
4	0(0)	12	5[illegible](5.0)	20	5.0(5.0)	28	0(0)	36	2.5(2.5)	44	5.1(5.1)	52	0(0)	60	5.0(0)
5	-(-)	13	[illegible]	21	0(0)	29	0.6(0.6)	37	0(0)	45	2.1(2.1)	53	0(0)	61	0(0)
6	0.1(5.0)	14	[illegible](0)	22	5.1(5.1)	30	0.6(0.6)	38	3.2(3.2)	46	2.3(2.3)	54	0(0)	62	0(0)
7	0(0)	15	[illegible](-)	23	0(0)	31	0(0)	39	5.0(5.0)	47	0	55	0(0)	63	0.3(0.3)
8	5.0(5.0)	16	2[illegible](2.2)	24	0(0)	32	0(0)	40	0.3(0.3)	48	5.0(5.0)	56	4.9(0)	64	0(4.9)

IC902

1	0	8	0.3
2	0	9	0
3	5.1	10	1.6
4	2.7	11	-
5	2.5	12	0
6	2.7	13	-
7	2.5	14	0

IC905

1	11.2
2	0
3	5.1

IC907

1	12.0
2	0
3	8.9

IC610

1	-(-)	11	-(-)
2	2.2(2.2)	12	2.3(2.3)
3	2.6(2.5)	13	-(-)
4	0(4.9)	14	0.1(0.1)
5	0(0)	15	-(-)
6	-(-)	16	0(0)
7	-(-)	17	2.3(2.2)
8	-(-)	18	5.3(5.3)
9	-(-)	19	-(-)
10	-(-)	20	-(-)

IC602

1	0	9	2.8
2	0.9	10	2.7
3	0.9	11	2.2
4	1.5	12	[illegible]5
5	1.5	13	2.8
6	2.3	14	2.7
7	0	15	2.7
8	0	16	5.3

IC610

1	-(-)	11	-(-)
2	2.2(2.2)	12	2.3(2.3)
3	2.6(2.5)	13	-(-)
4	0(4.9)	14	0.1(0.1)
5	0(0)	15	-(-)
6	-(-)	16	0(0)
7	-(-)	17	2.3(2.2)
8	-(-)	18	5.3(5.3)
9	-(-)	19	-(-)
10	-(-)	20	-(-)

IC906

1	0(0)
2	0(0)
3	3.0(3.0)
4	11.9(11.9)
5	11.6(11.6)
6	9.3(8.3)
7	0
8	2.5(2.5)

IC960

1	8.9
2	4.4
3	3.8
4	-
5	0
6	-
7	-
8	4.3
9	-

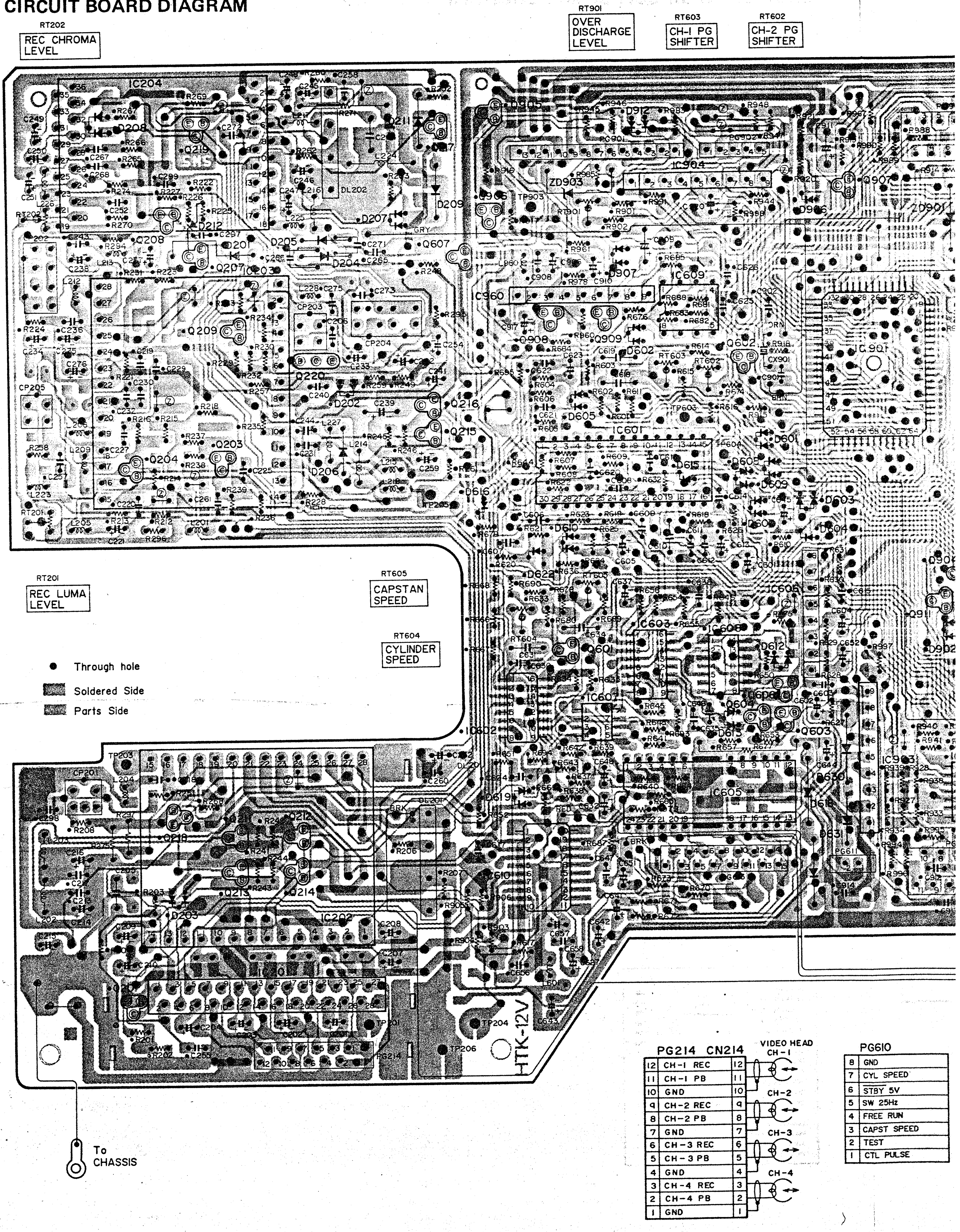
	Q201	Q204	Q205	Q206	Q207	Q208	Q209	Q210	Q211
B	4.4(0)	2.1(0)	1.5(0)	2.1(0)	1.3(1.3)	3.5(3.5)	0.6(0.4)	0.2(0.1)	8.0(8.8)
C	5.0(-1.5)	5.1(0)	2.1(0)	5.1(0)	3.5(3.5)	5.0(5.0)	0(1.4)	0	8.4(0.2)
E	0(0)	1.5(0)	0(0)	1.5(0)	0.6(0.6)	2.9(2.9)	0(0)	0(0)	8.8(8.8)

	Q212	Q213	Q214	Q215	Q216	Q218	Q601	Q603	Q604
B	5.1(0)	8.8(8.0)	0(4.6)	5.3(3.9)	0(4.9)	5.1(0)	0	3.9	0
C	0(8.8)	0(8.7)	8.8(0)	0(4.6)	5.3(0)	0(0)	4.6	0	2.3
E	0(0)	8.8(8.8)	0(0)	5.3(4.6)	0(0)	0(0)	0	0	0

	Q602	Q606	Q901	Q902	Q903	Q904	Q905	Q906	Q907
B	5.0	0	0	0	0.7	11.5	4.6(4.7)	0.8(0)	3.8
C	0	3.9	12.0	12.0	0	11.2	5.1(0)	0(4.7)	4.5
E	0	0	0	0	0	12.0	5.3(5.3)	0	3.3

	Q908	Q909	Q910	Q911	Q951	Q952	Q953	Q954	Q607
B	8.2(8.3)	0.6(0)	0(4.5)	2.2	11.6	11.2(11.5)	3.9(0.2)	0(4.9)	0
C	8.8(0)	0(8.3)	5.1(5.1)	1.8	5.5	11.9(7.2)	0.2(8.7)	3.9(0.2)	0
E	8.9(8.9)	0	0.2(4.1)	0	11.9	11.9(11.9)	0	0	0

	Q203	Q217	Q219	Q220
B	0(2.5)	5.0(0)	0.4(0.4)	5.1(0)
C	0(6.9)	-(-)	0(0)	0(-)
E	0(1.9)	5.1(0)	1.1(1.1)	0(0)

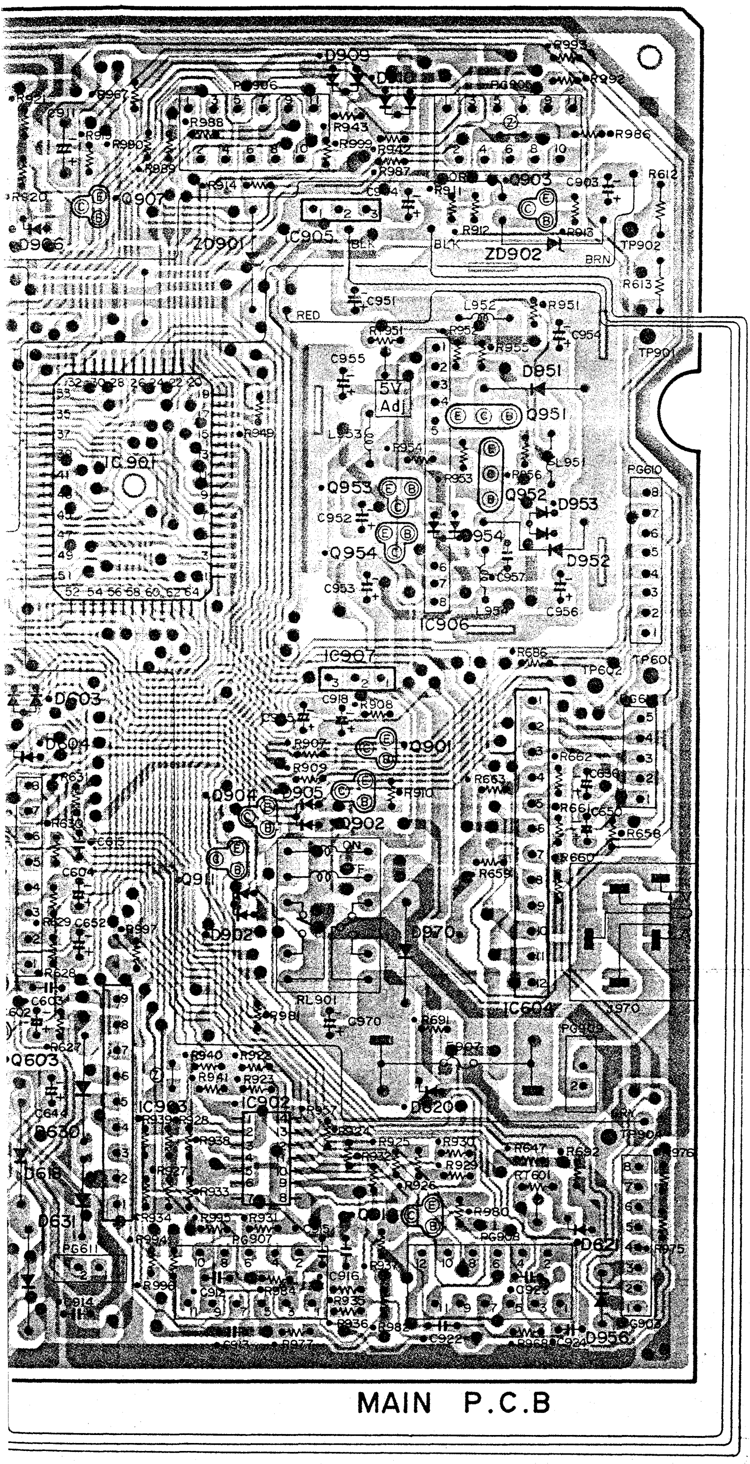


● Through hole
▨ Soldered Side
▨ Parts Side

PG214		CN214
12	CH-1 REC	12
11	CH-1 PB	11
10	GND	10
9	CH-2 REC	9
8	CH-2 PB	8
7	GND	7
6	CH-3 REC	6
5	CH-3 PB	5
4	GND	4
3	CH-4 REC	3
2	CH-4 PB	2
1	GND	1

PG610

8	GND
7	CYL SPEED
6	$\overline{\text{STBY}}$ 5V
5	SW 25Hz
4	FREE RUN
3	CAPST SPEED
2	TEST
1	CTL PULSE


D909
D910
PG906
PG905
Q907
Q903
IC905
ZD901
ZD902
TP902
RED
BLK
BRN
C951
L952
R951
C954
C955
TP901
5V Adj
D951
Q951
L953
IC901
Q953
Q952
D953
C952
Q954
D954
D952
PG610
IC906
C956
C953
IC907
TP601
TP602
D603
D604
Q901
Q904
D905
D902
Q911
D902
D970
RL901
IC604
C970
PG903
D620
IC903
IC902
Q603
D630
D631
PG611
PG907
PG908
D621
RT601
D956
PG902
D614
MAIN P.C.B

RT601

TRACKING PRESET

PG613

1	V
2	W
3	U
4	HALL BIAS
5	TACH BIAS
6	U −
7	W −
8	V −
9	HALL BIAS
10	V +
11	W +
12	U +
13	TACH BIAS
14	CYL. FG
15	CYL. FG

To CYL. MOTOR CN613

PG907

11	M. STATE 2
10	M. STATE 1
9	M. STATE 0
8	LOAD
7	UNLOAD
6	REEL PULSE
5	CASSETTE SW
4	TAB
3	FWD END
2	REW END
1	END LAMP

To AUDIO (TROUBLE SENSOR) CN107

PG908

1	AUDIO
2	GND (AUDIO)
3	VTR REC SW
4	REC LED
5	PB
6	AUDIO MUTE
7	MIC CUT
8	OSC ON
9	GND
10	DEW
11	STBY 5V
12	TRACKING

To AUDIO (AUDIO) CN408

PG901

1	INHIBIT
2	CAMERA/VTR
3	TIME LAPSE
4	REC/LOW BATT.
5	PB 5V
6	STANDBY
7	VTR REC SW
8	STBY 5V
9	GND
10	12V
11	VIDEO (V — C)
12	GND
13	VIDEO (C — V)

To REGULATOR CN1501

PG909

1	GND
2	12V

To BATTERY CN909

PG902

1	STBY 5V
2	BATT EMPTY
3	BATT MID
4	BATT FULL
5	REVIEW

To CAMERA SW CN1602

PG903

8	VIDEO
7	SECAM
6	AUDIO
5	AUDIO
4	GND (AUDIO)
3	12V
2	GND
1	VIDEO

To A/V CONNECTOR

PG905

1	5V
2	POWER SW
3	GND
4	CAMERA/VCR
5	——
6	1/2 REEL PULSE
7	LCD B+
8	MEMORY STOP
9	COUNTER 0
10	COUNTER 1
11	——

To FUNCTION SW CN005

PG906

1	PHASE 0
2	PHASE 1
3	MAT 0
4	MAT 1
5	MAT 2
6	——
7	EJECT SW
8	LED 0 (PAUSE)
9	LED 1 (REWIND)
10	LED 2 (PLAY/F.FWD)
11	LED 3 (POWER)

To FUNCTION SW CN006

PG610

8	GND
7	CYL SPEED
6	STBY 5V
5	SW 25Hz
4	FREE RUN
3	CAPST SPEED
2	TEST
1	CTL PULSE

ADJUSTMENT TERMINAL

PG611 CN611 CTL HEAD

2	CTL PULSE	2
1	GND	1

PG612

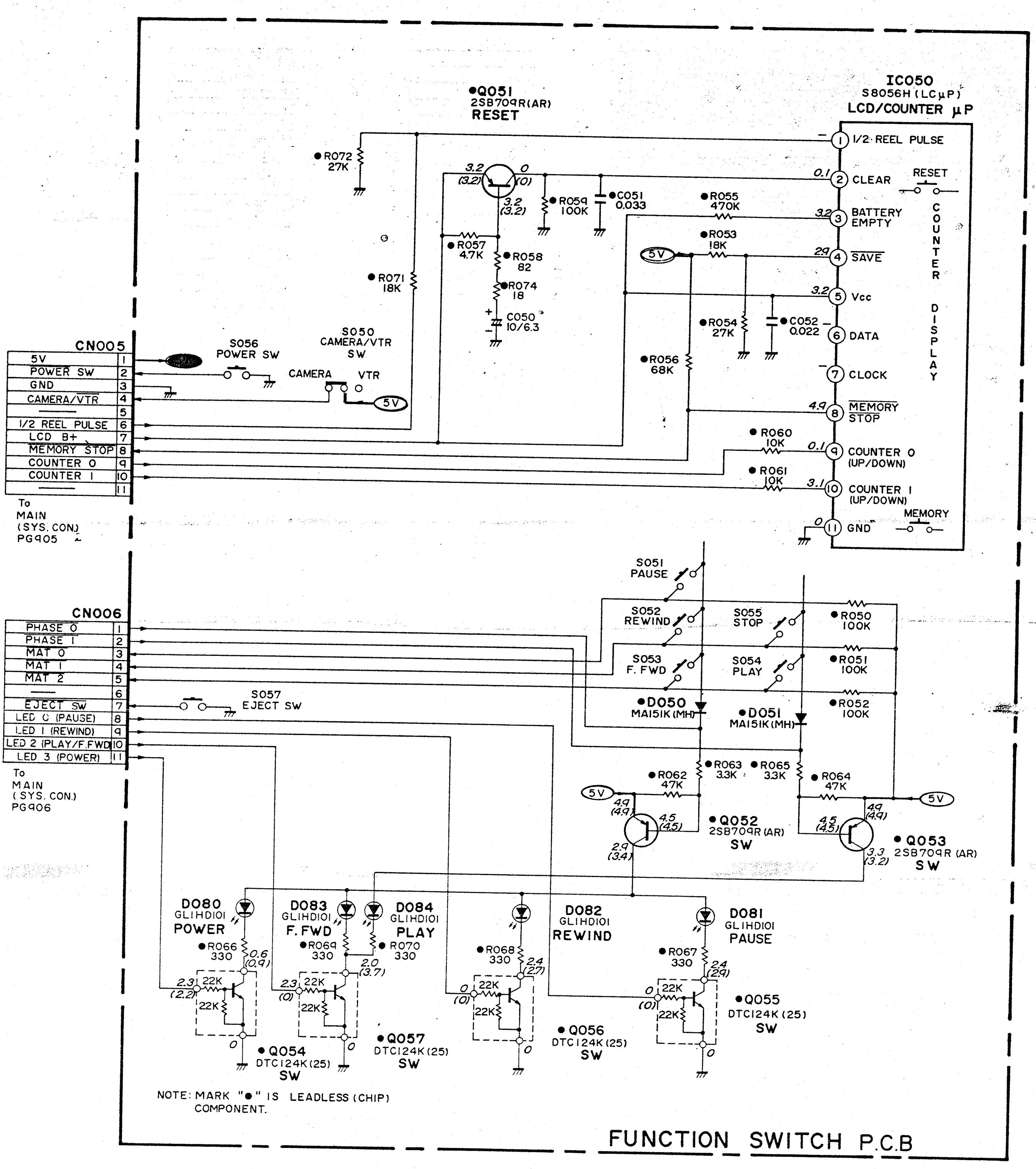
5	FORWARD
4	GND
3	REWIND
2	CAPST FG
1	GND

To CAPST MOTOR CN612

NOTE: MARK "Ⓩ" IS LEADLESS JUMPER.
MARK "●" IS LEADLESS(CHIP) COMPONENT.

9 10 11 12

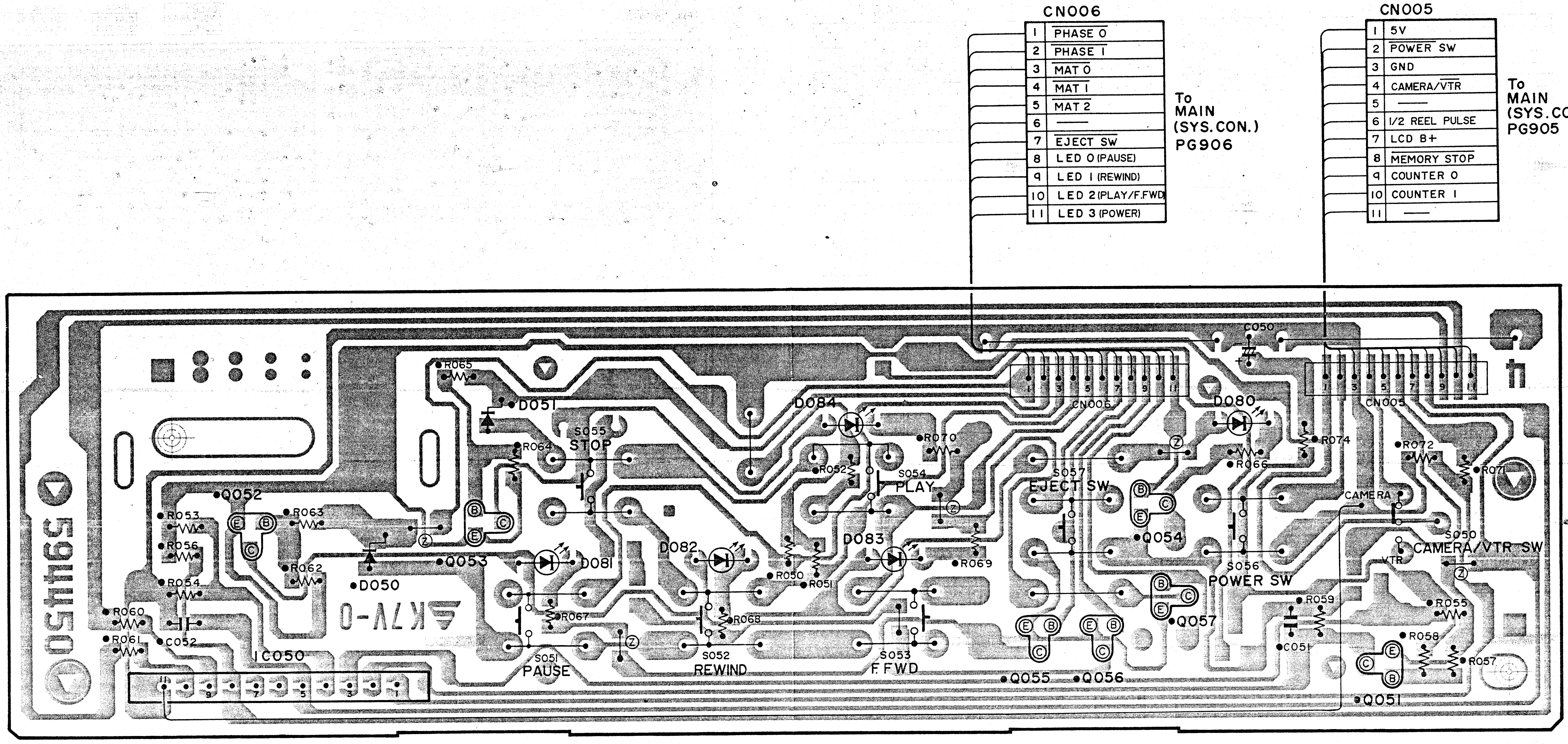
FUNCTION SW SCHEMATIC DIAGRAM



IC050
S8056H (LCμP)
LCD/COUNTER μP
1/2 REEL PULSE
CLEAR
BATTERY EMPTY
SAVE
Vcc
DATA
CLOCK
MEMORY STOP
COUNTER 0 (UP/DOWN)
COUNTER 1 (UP/DOWN)
GND
RESET
MEMORY
COUNTER DISPLAY
●Q051
2SB709R(AR)
RESET
●R072 27K
●R059 100K
●C051 0.033
●R055 470K
●R053 18K
●R057 4.7K
●R058 82
●R074 18
C050 10/6.3
●R071 18K
●R054 27K
●C052 0.022
●R056 68K
●R060 10K
●R061 10K
5V
CN005
5V
POWER SW
GND
CAMERA/VTR
1/2 REEL PULSE
LCD B+
MEMORY STOP
COUNTER 0
COUNTER 1
To MAIN (SYS. CON.) PG905
S056 POWER SW
S050 CAMERA/VTR SW
CAMERA
VTR
CN006
PHASE 0
PHASE 1
MAT 0
MAT 1
MAT 2
EJECT SW
LED 0 (PAUSE)
LED 1 (REWIND)
LED 2 (PLAY/F.FWD)
LED 3 (POWER)
To MAIN (SYS. CON.) PG906
S057 EJECT SW
S051 PAUSE
S052 REWIND
S053 F. FWD
S055 STOP
S054 PLAY
●R050 100K
●R051 100K
●R052 100K
●D050 MA151K(MH)
●D051 MA151K(MH)
●R062 47K
●R063 3.3K
●R065 3.3K
●R064 47K
●Q052 2SB709R (AR) SW
●Q053 2SB709R (AR) SW
D080 GL1HD101 POWER
D083 GL1HD101 F. FWD
D084 GL1HD101 PLAY
D082 GL1HD101 REWIND
D081 GL1HD101 PAUSE
●R066 330
●R069 330
●R070 330
●R068 330
●R067 330
22K
●Q054 DTC124K (25) SW
●Q057 DTC124K (25) SW
●Q056 DTC124K (25) SW
●Q055 DTC124K (25) SW
FUNCTION SWITCH P.C.B
E
D
C
B
A
1
2
3
4

NOTE: MARK "●" IS LEADLESS (CHIP) COMPONENT.

FUNCTION SW CIRCUIT BOARD DIAGRAM



To MAIN (SYS. CON.) PG906
To MAIN (SYS. CON.) PG905
CN006
CN005
C050
D051
D084
D080
R065
R064
R070
R074
R072
R071
R066
R052
S055 STOP
S054 PLAY
S057 EJECT SW
CAMERA
VTR
S050 CAMERA/VTR SW
S056 POWER SW
Q052
R063
R053
R056
R054
R062
Q053
D050
D081
D082
D083
R050
R051
R069
Q054
R067
R068
R059
R055
R058
R057
R060
R061
C052
C051
IC050
S051 PAUSE
S052 REWIND
S053 F.FWD
Q055
Q056
Q057
Q051
K7V-0
59HH50

CN006

1	PHASE 0
2	PHASE 1
3	MAT 0
4	MAT 1
5	MAT 2
6	———
7	EJECT SW
8	LED 0 (PAUSE)
9	LED 1 (REWIND)
10	LED 2 (PLAY/F.FWD)
11	LED 3 (POWER)

To MAIN (SYS. CON.) PG906

CN005

1	5V
2	POWER SW
3	GND
4	CAMERA/$\overline{\text{VTR}}$
5	———
6	1/2 REEL PULSE
7	LCD B+
8	MEMORY STOP
9	COUNTER 0
10	COUNTER 1
11	———

To MAIN (SYS. CON.) PG905

FUNCTION SW P.C.B

※ NOTE: MARK "Ⓩ" IS LEADLESS JUMPER.
MARK "●" IS LEADLESS(CHIP) COMPONENT.

Q051

B	3.2(3.2)
C	0 (0)
E	3.2(3.2)

Q052

B	4.5(4.5)
C	2.9(3.4)
E	4.9(4.9)

Q053

B	4.5(4.5)
C	3.3(3.2)
E	4.9(4.9)

Q054

B	2.3(2.2)
C	0.6(0.9)
E	0

Q055

B	0 (0)
C	2.4(2.9)
E	0

Q056

B	0 (0)
C	2.4(2.7)
E	0

Q057

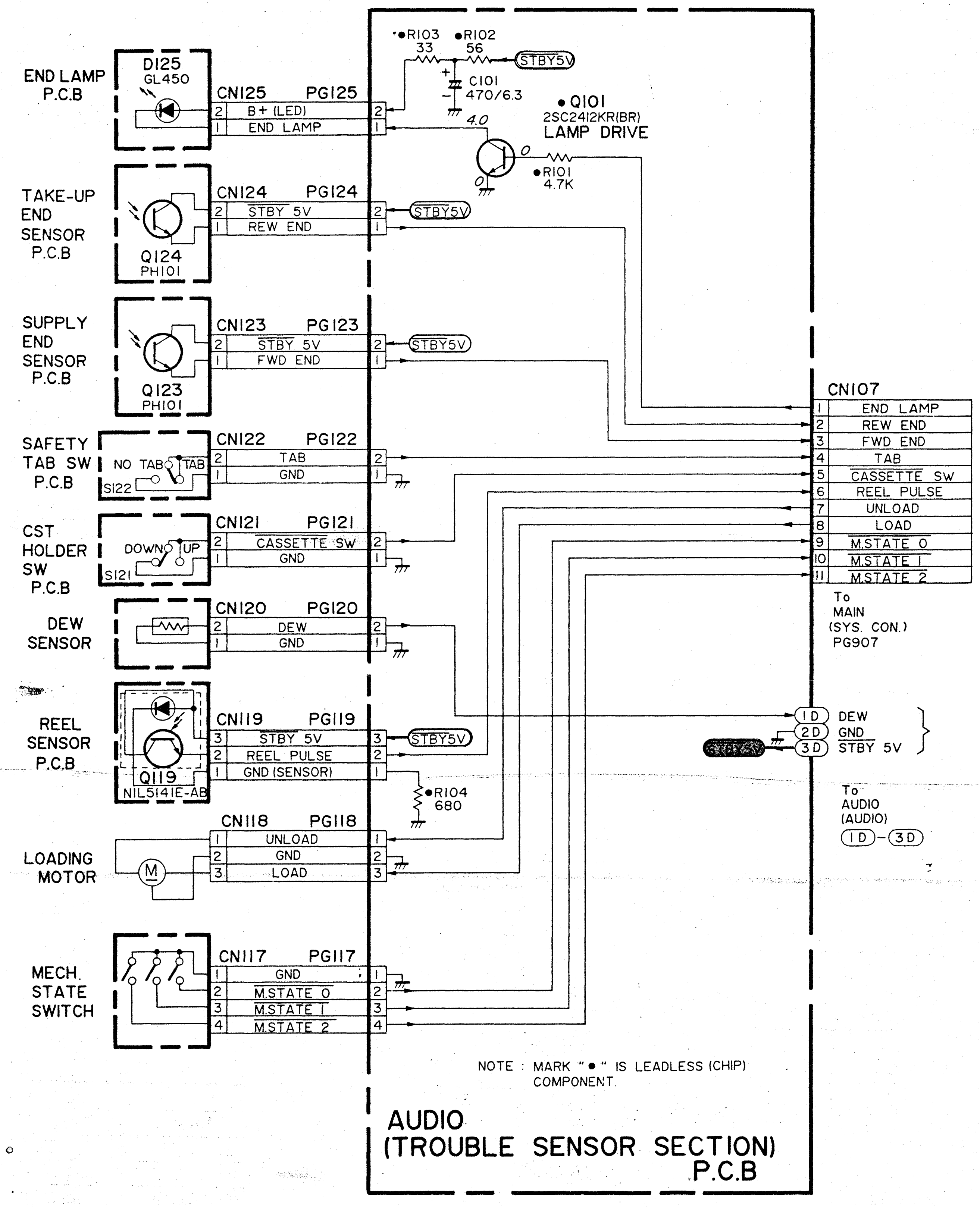
B	2.3 (0)
C	2.0(3.7)
E	0

IC050

1	-
2	0.1
3	3.2
4	2.9
5	3.2
6	-
7	-
8	4.9
9	0.1
10	3.1
11	0

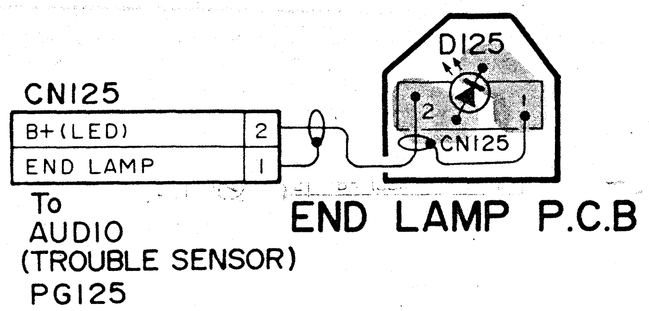
SCHEMATIC	PAGE
PREAMP	168
PRE PROCESS	169
VIDEO PROCESS	185
DEFLECTION	190
REGULATOR	196
CAMERA SW	204
ELECTRONIC VIEWFINDER	206
MIC JACK	211
AUTO FOCUS	212
SYSTEM CONTROL	217
SERVO	219
CYL.–/CAPST. –MOTORS DRIVE	227
SWITCHING REGULATOR	228
LUMA/CHROMA	229
FUNCTION SW	242
AUDIO	248
TROUBLE SENSOR	246

AUDIO (TROUBLE SENSOR) SCHEMATIC DIAGRAM

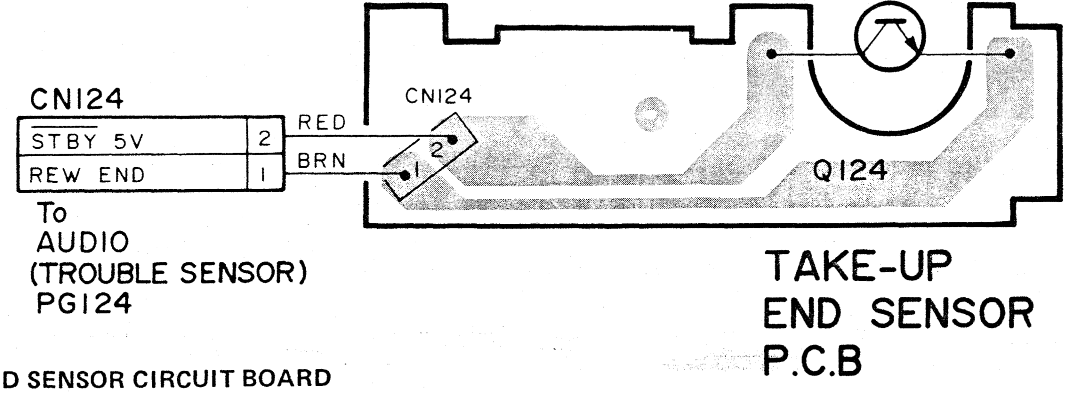

END LAMP P.C.B
D125
GL450
CN125 PG125
B+ (LED)
END LAMP
TAKE-UP END SENSOR P.C.B
Q124
PH101
CN124 PG124
STBY 5V
REW END
SUPPLY END SENSOR P.C.B
Q123
PH101
CN123 PG123
STBY 5V
FWD END
SAFETY TAB SW P.C.B
NO TAB
TAB
S122
CN122 PG122
TAB
GND
CST HOLDER SW P.C.B
DOWN
UP
S121
CN121 PG121
CASSETTE SW
GND
DEW SENSOR
CN120 PG120
DEW
GND
REEL SENSOR P.C.B
Q119
NIL5141E-AB
CN119 PG119
STBY 5V
REEL PULSE
GND (SENSOR)
LOADING MOTOR
M
CN118 PG118
UNLOAD
GND
LOAD
MECH. STATE SWITCH
CN117 PG117
GND
M.STATE 0
M.STATE 1
M.STATE 2
•R103 33
•R102 56
STBY5V
C101 470/6.3
4.0
•Q101
2SC2412KR(BR)
LAMP DRIVE
0
•R101 4.7K
•R104 680
CN107
END LAMP
REW END
FWD END
TAB
CASSETTE SW
REEL PULSE
UNLOAD
LOAD
M.STATE 0
M.STATE 1
M.STATE 2
To MAIN (SYS. CON.) PG907
1D DEW
2D GND
3D STBY 5V
To AUDIO (AUDIO) 1D-3D
AUDIO (TROUBLE SENSOR SECTION) P.C.B

NOTE : MARK "•" IS LEADLESS (CHIP) COMPONENT.

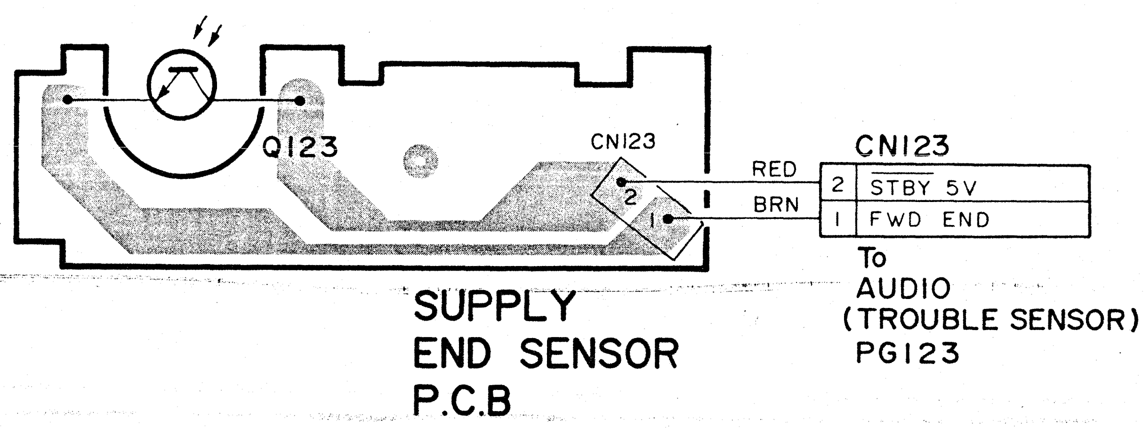
• END LAMP CIRCUIT BOARD


CN125
B+(LED) 2
END LAMP 1
To AUDIO (TROUBLE SENSOR) PG125
D125
CN125
END LAMP P.C.B

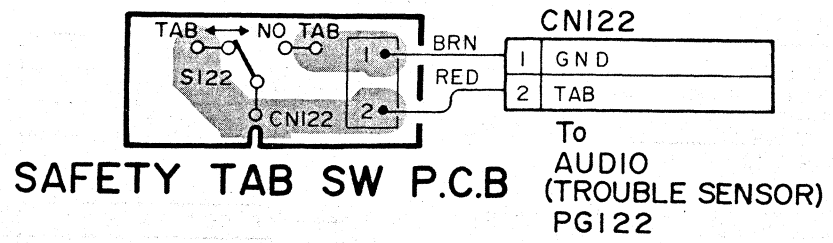
• TAKE-UP END SENSOR CIRCUIT BOARD


CN124
STBY 5V 2
REW END 1
RED
BRN
CN124
Q124
To AUDIO (TROUBLE SENSOR) PG124
TAKE-UP END SENSOR P.C.B

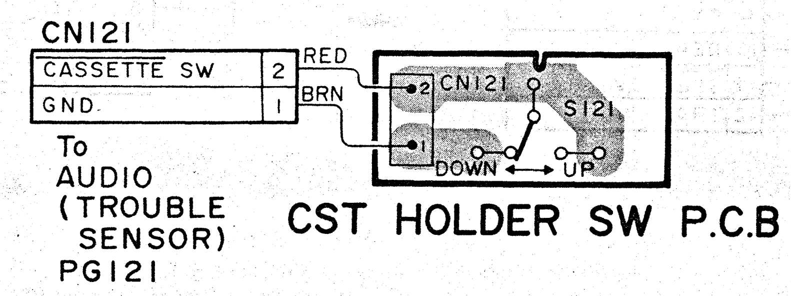
• SUPPLY END SENSOR CIRCUIT BOARD


Q123
CN123
RED
BRN
CN123
2 STBY 5V
1 FWD END
To AUDIO (TROUBLE SENSOR) PG123
SUPPLY END SENSOR P.C.B

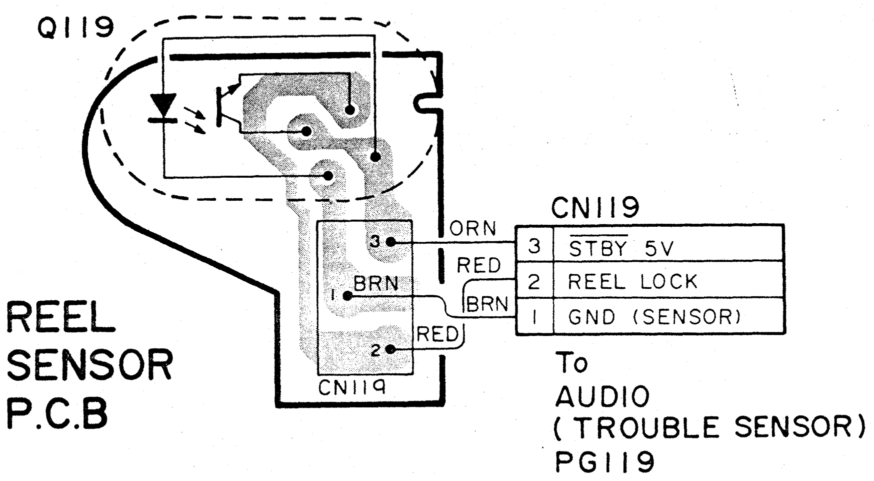
• SAFETY TAB SW CIRCUIT BOARD


TAB
NO TAB
S122
CN122
BRN
RED
CN122
1 GND
2 TAB
To AUDIO (TROUBLE SENSOR) PG122
SAFETY TAB SW P.C.B

• CASSETTE HOLDER SW CIRCUIT BOARD


CN121
CASSETTE SW 2
GND 1
RED
BRN
CN121
S121
DOWN
UP
To AUDIO (TROUBLE SENSOR) PG121
CST HOLDER SW P.C.B

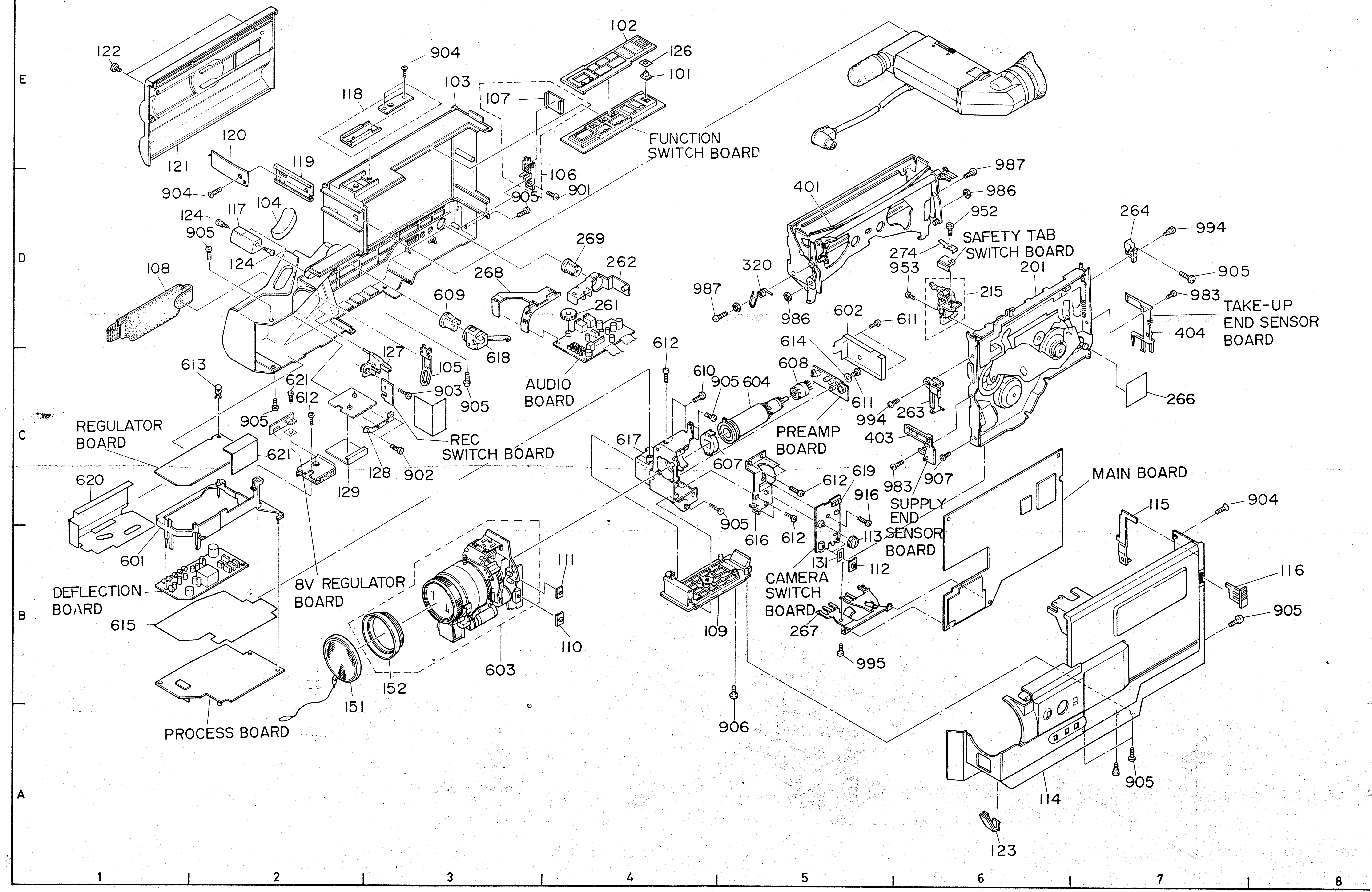
• REES SENSOR CIRCUIT BOARD


Q119
CN119
3
STBY 5V
2
REEL LOCK
1
GND (SENSOR)
ORN
RED
BRN
BRN
RED
3
1
2
CN119
REEL SENSOR P.C.B
To AUDIO (TROUBLE SENSOR) PG119

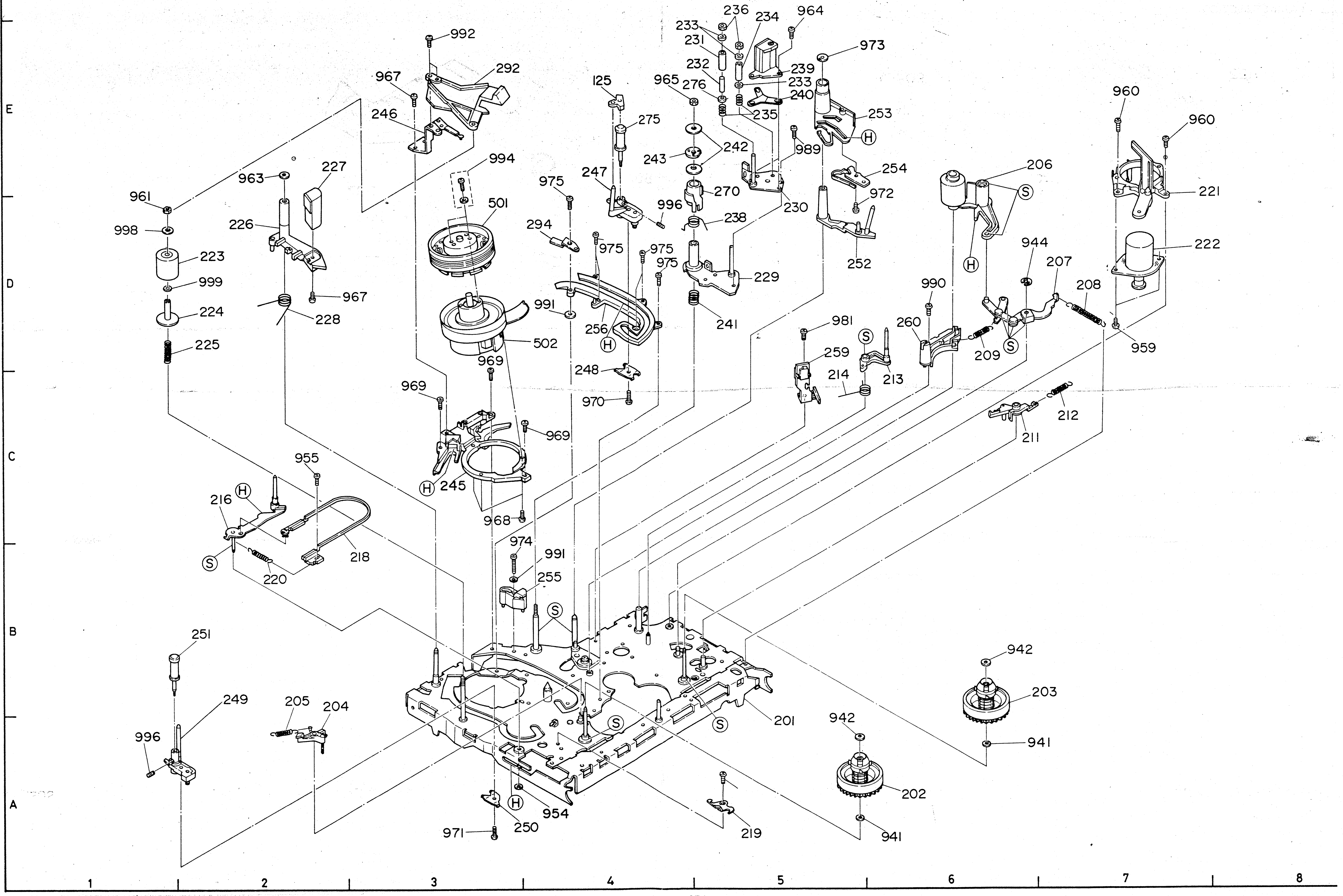
SCHEMATIC	PAGE	SCHEMATIC	PAGE
PREAMP	168	SYSTEM CONTROL	217
PRE PROCESS	169	SERVO	219
VIDEO PROCESS	185	CYL.–/CAPST. –MOTORS DRIVE	227
DEFLECTION	190	SWITCHING REGULATOR	228
REGULATOR	196	LUMA/CHROMA	229
CAMERA SW	204	FUNCTION SW	242
ELECTRONIC VIEWFINDER	205	AUDIO	248
MIC JACK	211	TROUBLE SENSOR	245
AUTO FOCUS	212		

EXPLODED VIEWS

CABINET SECTION

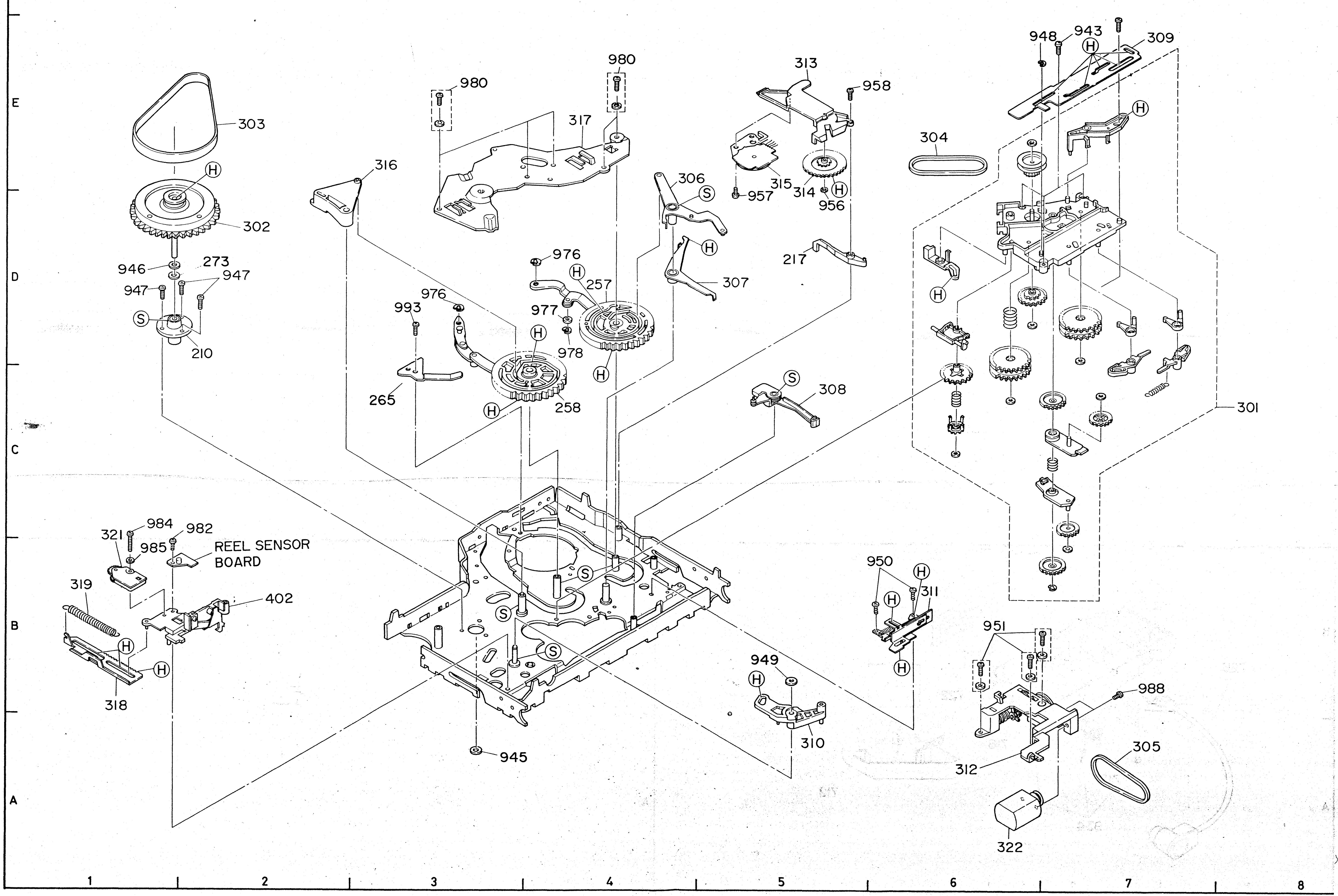

E
D
C
B
A
1
2
3
4
5
6
7
8
122
121
904
118
103
120
119
107
102
126
101
FUNCTION SWITCH BOARD
904
124
117
104
905
124
108
106
905
901
269
262
268
261
609
618
AUDIO BOARD
127
105
903
905
613
621
612
905
REGULATOR BOARD
621
620
601
128
902
129
REC SWITCH BOARD
8V REGULATOR BOARD
DEFLECTION BOARD
615
PROCESS BOARD
151
152
603
111
110
401
987
986
952
SAFETY TAB SWITCH BOARD
274
953
215
201
264
994
905
983
TAKE-UP END SENSOR BOARD
404
320
987
986
602
611
614
608
611
612
610
905
604
PREAMP BOARD
617
607
994
263
403
266
983
907
612
619
916
905
616
612
SUPPLY END SENSOR BOARD
113
131
112
CAMERA SWITCH BOARD
267
109
995
906
MAIN BOARD
115
904
116
905
905
114
123

CHASSIS (UPPER) SECTION

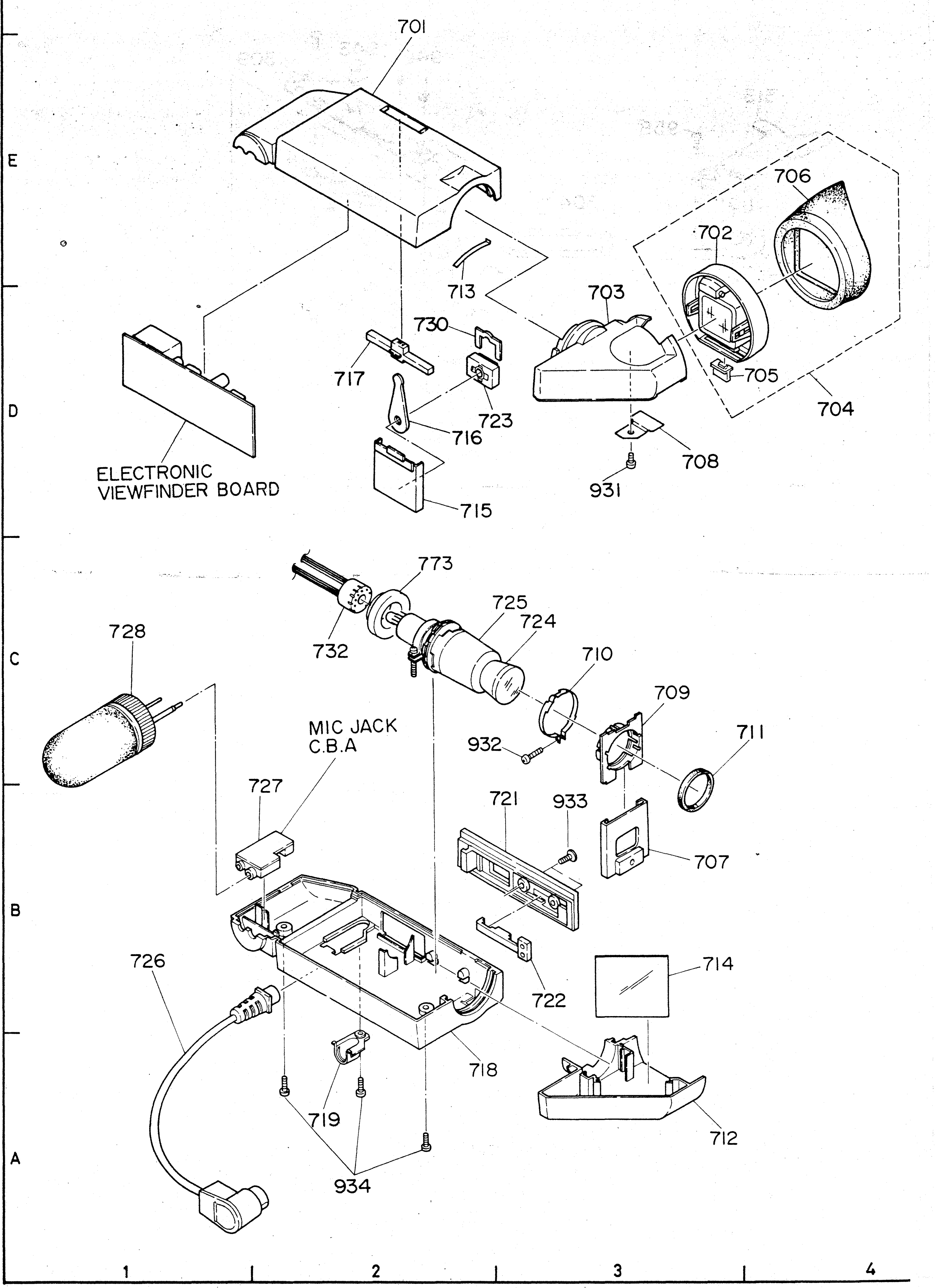

E
D
C
B
A
1
2
3
4
5
6
7
8
992
967
292
246
994
501
502
227
963
961
998
223
999
224
225
226
228
967
125
275
247
975
294
975
975
975
991
256
H
248
970
236
233
234
964
231
232
965
276
239
233
240
235
242
243
270
238
229
241
230
989
973
253
H
254
972
252
206
S
H
960
960
221
222
944
207
208
990
260
209
S
959
981
259
S
213
214
212
211
969
969
969
H
245
968
955
216
H
218
S
220
974
991
255
S
S
S
201
942
203
941
942
202
941
251
249
996
205
204
H
954
250
971
219

253 254

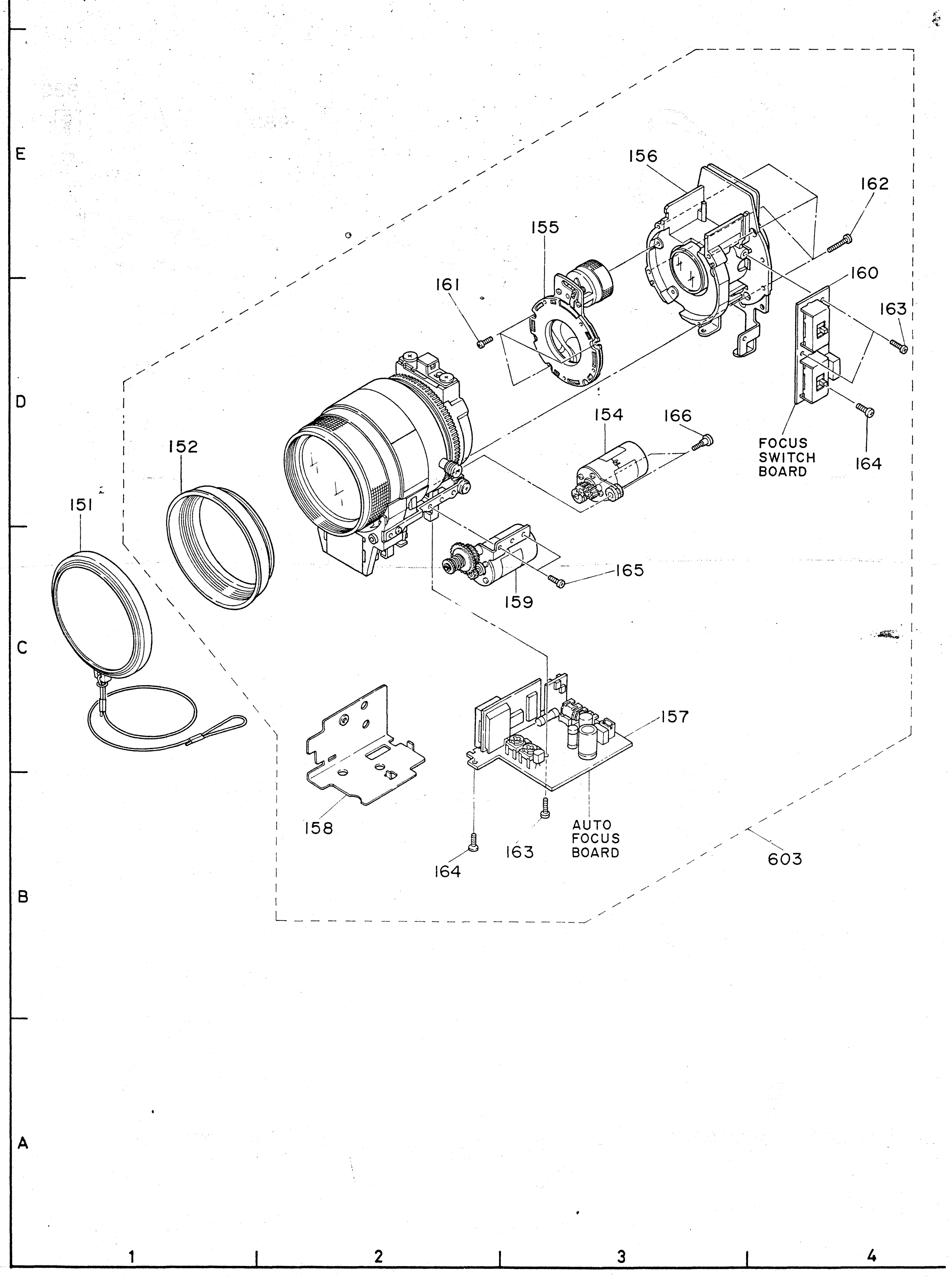
CHASSIS (LOWER) SECTION


303
H
302
946
273
947
947
S
210
980
980
317
316
306
S
313
958
315
314
957
956
H
304
948
943
H
309
H
217
307
H
976
H
257
976
993
977
978
H
265
258
H
H
308
S
301
H
321
984
982
985
REEL SENSOR
BOARD
319
402
H
H
318
S
S
S
950
H
H
311
H
951
949
H
310
988
305
312
322
945
E
D
C
B
A
1
2
3
4
5
6
7
8

ELECTRONIC VIEW FINDER SECTION


701
706
702
713
703
730
717
723
716
705
704
ELECTRONIC
VIEWFINDER BOARD
715
708
931
773
725
724
732
728
710
709
MIC JACK
C.B.A
932
711
727
721
933
707
726
714
722
718
719
712
934
E
D
C
B
A
1
2
3
4

LENS SECTION


156
162
155
160
161
163
154
166
FOCUS
SWITCH
BOARD
164
152
151
165
159
157
158
AUTO
FOCUS
BOARD
164
163
603
E
D
C
B
A
1
2
3
4

LUBRICATION

Lubrication points are shown in the exploded view diagrams by marks (Ⓢ, Ⓗ)
Lubricants shown in the diagram are as follows.

Ⓢ Sonic slider oil (# 1600)
Ⓗ Hitazol (MO-138)

REPLACEMENT PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION
		CAPACITORS
C 050	0256387	TANTALUM ELECTROLYTIC 10UF,6.3V
C 051	0201068	CAPACITORO.033UF+80-20%25VCERAMICCHIP
C 204	0256685	ELECTROLYTIC 1UF,50V
C 213	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 214	0256158	CAPACITOR 47UF 16V ELECTROLYTIC
C 216	0256158	CAPACITOR 47UF 16V ELECTROLYTIC
C 217	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 218	0201037	CERAMIC CHIP 330PF+-5% 50V
C 219	0201029	CERAMIC CHIP 68PF+–5% 50V
C 220	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 221	0256160	ELECTROLYTIC 47UF,6.3V
C 225	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 227	0201030	CERAMIC CHIP 82PF+–5% 50V
C 229	0201031	CERAMIC CHIP 100PF+–5% 50V
C 230	0201033	CERAMIC CHIP 150PF+–5% 50V
C 232	0201041	CERAMIC CHIP 680PF+–5% 50V
C 234	0256160	ELECTROLYTIC 47UF,6.3V
C 236	0201030	CERAMIC CHIP 82PF+–5% 50V
C 243	0201032	CERAMIC CHIP 120PF+–5% 50V
C 244	0201023	CERAMIC CHIP 18PF+-5% 50V
C 246	0256159	ELECTROLYTIC 100UF 6.3V
C 252	0201031	CERAMIC CHIP 100PF+–5% 50V
C 255	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 258	0201100	CERAMIC CHIP 0.033UF+-10%
C 259	0256159	ELECTROLYTIC 100UF 6.3V
C 261	0201081	CERAMIC CHIP 8PF+–0.5% 50V
C 265	0201034	CERAMIC CHIP 180PF+-5%
C 266	0201035	CERAMIC CHIP 200PF +-5% 50V
C 267	0201041	CERAMIC CHIP 680PF+-5% 50V
C 268	0201007	CERAMIC CHIP 0.01UF+–20% 50V
C 271	0201007	CERAMIC CHIP 0.01UF+–20% 50V
C 272	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 273	0201028	CERAMIC CHIP 56PF+-5% 50V
C 297	0201001	CERAMIC CHIP 22PF+–5% 50V
C 298	0201022	CERAMIC CHIP 15PF+–5% 50V
C 401	0201054	CERAMIC CHIP 0.001UF+–10% 50V
C 402	0256160	ELECTROLYTIC 47UF,6.3V
C 405	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 410	0201061	CERAMIC CHIP 0.0047UF+-10% 50V
C 411	0201061	CERAMIC CHIP 0.0047UF+-10% 50V
C 417	0201100	CERAMIC CHIP 0.033UF+-20% 50V
C 419	0256159	ELECTROLYTIC 100UF 6.3V
C 420	0256159	ELECTROLYTIC 100UF 6.3V
C 422	0256159	ELECTROLYTIC 100UF 6.3V
C 423	0256160	ELECTROLYTIC 47UF,6.3V
C 424	0201049	CERAMIC CHIP 390PF+-10% 50V
C 426	0256160	ELECTROLYTIC 47UF,6.3V
C 428	0201047	CERAMIC CHIP 220PF +- 10% 50V
C 429	0201061	CERAMIC CHIP 0.0047UF+-10% 50V
C 430	0256160	ELECTROLYTIC 47UF,6.3V
C 431	0201008	CERAMIC CHIP 0.015UF+-10%
C 432	0201061	CERAMIC CHIP 0.0047UF+-10% 50V
C 434	0201059	CERAMIC CHIP 0.0033UF+-10% 50V
C 601	0256160	ELECTROLYTIC 47UF,6.3V
C 603	0201072	CERAMIC CHIP 0.047UF+80-20%
C 605	0256471	TANTALUM ELECTROLYTIC 10UF 6.3V
C 606	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 607	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 608	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 609	0201100	CERAMIC CHIP 0.033UF+-10%
C 611	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 612	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 614	0201028	CERAMIC CHIP 56PF+-5% 50V
C 615	0201035	CERAMIC CHIP 220PF+-5% 50V
C 616	0201031	CERAMIC CHIP 100PF+-5% 50V
C 617	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 620	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 621	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 622	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 623	0256475	TANTALUM 4.7UF+-30%10V
C 624	0201057	CERAMIC CHIP 0.0022UF+-10% 50V
C 625	0201057	CERAMIC CHIP 0.0022UF+-10% 50V
C 626	0201057	CERAMIC CHIP 0.0022UF+-10% 50V
C 630	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 635	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 638	0201057	CERAMIC CHIP 0.0022UF+-10% 50V
C 647	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 649	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 652	0256160	ELECTROLYTIC 47UF,6.3V
C 656	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 657	0256159	ELECTROLYTIC 100UF 6.3V
C 658	0201065	CERAMIC CHIP 0.022UF+-10% 50V
C 901	0201025	CERAMIC CHIP 33PF+-5%
C 902	0201025	CERAMIC CHIP 33PF+-5%
C 908	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 911	0256490	ELECTROLYTIC 0.22F 5.5V
C 912	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 913	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 914	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 915	0201007	CERAMIC CHIP 0.01UF +80-20%
C 916	0201007	CERAMIC CHIP 0.01UF +80-20%
C 952	0256158	CAPACITOR ELECTROLYTIC 47UF 16V
C 953	0256158	CAPACITOR ELECTROLYTIC 47UF 16V
C 954	0256159	ELECTROLYTIC 100UF 6.3V
C 956	0256158	ELECTROLYTIC 47UF 16V
C1001	0201008	CERAMIC CHIP 0.015UF+-10%
C1002	0256158	CAPACITOR 47UF 16V ELECTROLYTIC
C1005	0256156	CAPACITOR ELECTROLYTIC 22UF 16V
C1006	0256154	CAPACITOR ELECTROLYTIC 4.7UF 25V
C1007	0201017	CAPACITOR 7PF+-0.5PF
C1008	0201015	CERAMIC CHIP 5PF+-0.25PF 50V
C1009	0256158	CAPACITOR 47UF 16V ELECTROLYTIC
C1010	0256158	CAPACITOR 47UF 16V ELECTROLYTIC
C1011	0201989	CERAMIC CHIP 0.1UF+-20% 50V
C1102	0256156	CAPACITOR ELECTROLYTIC 22UF 16V
C1107	0201001	CERAMIC CHIP 22PF+-5% 50V
C1110	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1111	0201007	CERAMIC CHIP 0.01UF+-20% 50V

SYMBOL-NO	P-NO	DESCRIPTION
		CAPACITORS
C1112	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C1113	0201027	CERAMIC CHIP 47PF +-5% 50V
C1115	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1116	0201031	CERAMIC CHIP 100PF+-5% 50V
C1118	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1119	0201072	CERAMIC CHIP 0.047UF+80-20%
C1121	0256160	ELECTROLYTIC 47UF,6.3V
C1122	0256160	ELECTROLYTIC 47UF,6.3V
C1124	0201026	CERAMIC CHIP 39PF+-5% 50V
C1125	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1126	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C1127	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C1129	0256160	ELECTROLYTIC 47UF,6.3V
C1131	0256158	CAPACITOR 47UF 16V ELECTROLYTIC
C1135	0256160	ELECTROLYTIC 47UF,6.3V
C1141	0201023	CERAMIC CHIP 18PF+-5% 50V
C1142	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C1143	0256159	ELECTROLYTIC 100UF 6.3V
C1144	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C1145	0201030	CERAMIC CHIP 82PF+-5% 50V
C1146	0201027	CERAMIC CHIP 47UF+-5% 50V
C1162	0201072	CERAMIC CHIP 0.047UF+80-20%
C1165	0201026	CAPACITOR 39PF+-5%
C1166	0256689	ELECTROLYTIC 10UF, 6.3V
C1170	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1172	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1180	0201035	CERAMIC CHIP 220PF+-5% 50V
C1183	0201037	CERAMIC CHIP 330PF+-5% 50V
C1305	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1306	0256158	CAPACITOR 47UF 16V ELECTROLYTIC
C1307	0256158	CAPACITOR 47UF 16V ELECTROLYTIC
C1310	0201038	CERAMIC CHIP 390PF+-5%
C1312	0256158	CAPACITOR 47UF 16V ELECTROLYTIC
C1314	0201054	CERAMIC CHIP 1000PF+-10% 50V
C1315	0201072	CERAMIC CHIP 0.047UF+80-20%
C1316	0201035	CERAMIC CHIP 220PF+-5% 50V
C1317	0256151	CAPACITOR ELECTROLYTIC 1UF 50V
C1318	0256158	CAPACITOR 47UF 16V ELECTROLYTIC
C1320	0201072	CERAMIC CHIP 0.047UF+80-20%
C1331	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1332	0256155	CAPACITOR ELECTROLYTIC 10UF 16V
C1334	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1337	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C1338	0256194	CAPACITOR 470UF 10V ELECTROLYTIC
C1501	0256158	CAPACITOR 47UF 16V ELECTROLYTIC
C1502	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C1504	0256151	CAPACITOR ELECTROLYTIC 1UF 50V
C1505	0256151	CAPACITOR ELECTROLYTIC 1UF 50V
C1506	0256158	CAPACITOR 47UF 16V ELECTROLYTIC
C1507	0256151	CAPACITOR ELECTROLYTIC 1UF 50V
C1508	0256151	CAPACITOR ELECTROLYTIC 1UF 50V
C1509	0256158	CAPACITOR 47UF 16V ELECTROLYTIC
C1510	0256156	CAPACITOR ELECTROLYTIC 22UF 16V

SYMBOL-NO	P-NO	DESCRIPTION
C1511	0256155	CAPACITOR ELECTROLYTIC 10UF 16V
C1513	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C1515	0256159	ELECTROLYTIC 100UF 6.3V
C1520	0256155	CAPACITOR ELECTROLYTIC 10UF 16V
C1523	0256155	CAPACITOR ELECTROLYTIC 10UF 16V
C1524	0256689	ELECTROLYTIC 10UF, 6.3V
C1526	0201036	CERAMIC CHIP 270PF+–5% 50V
C1802	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C1808	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C1811	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C1814	0256360	TANTALUM ELECTROLYTIC 0.1UF 35V
C1817	0256363	TANTALUM ELECTROLYTIC 0.33UF,35V
C1819	0201040	CAPACITOR 560PF+-5%
C1820	0201008	CERAMIC CHIP 0.015UF+-10%
C1821	0201989	CERAMIC CHIP 0.1UF+-20% 50V
C1822	0201039	CERAMIC CHIP 470PF+-5% 50V
C1827	0201989	CERAMIC CHIP 0.1UF+-20% 50V
C1831	0201061	CERAMIC CHIP 0.0047UF+-10% 50V
C1832	0201062	CERAMIC CHIP 0.0068UF+-10% 50V
C1833	0201062	CERAMIC CHIP 0.0068UF+-10% 50V
C1834	0201062	CERAMIC CHIP 0.0068UF+-10% 50V
C1835	0201039	CERAMIC CHIP 470PF+-5% 50V
CT1001	5058492	TRIMMER CAPACITOR
CT1102	5058482	TRIMMER 90PF
		RESISTORS
R 050	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 051	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 052	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 053	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R 054	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R 055	0103875	CHIP RESISTOR 470KOHM+-5% 0.1W
R 056	0103865	CHIP RESISTOR 68KOHM+-5% 0.1W
R 057	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 058	0103830	CHIP RESISTOR 82OHM +-5% 0.1W
R 059	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 060	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 061	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 062	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 063	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R 064	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 065	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R 066	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 067	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 068	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 069	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 070	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 071	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R 072	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R 101	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 102	0103828	CHIP RESISTOR 56OHM+-5% 0.1W
R 103	0103825	CHIP RESISTOR 33OHM+-5% 0.1W
R 104	0103841	CHIP RESISTOR 680OHM+-5% 0.1W
R 201	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 202	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W

SYMBOL-NO	P-NO	DESCRIPTION
		RESISTORS
R 203	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R 204	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R 206	0103838	CHIP RESISTOR 390OHM+-5% 0.1W
R 207	0103838	CHIP RESISTOR 390OHM+-5% 0.1W
R 208	0103853	CHIP RESISTOR 220OHM+-5% 0.1W
R 212	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R 213	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 214	0103839	CHIP RESISTOR 470OHM+-5% 0.1W
R 215	0103839	CHIP RESISTOR 470OHM+-5% 0.1W
R 216	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 221	0103839	CHIP RESISTOR 470OHM+-5% 0.1W
R 222	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R 223	0103840	CHIP RESISTOR 560OHM+-5% 0.1W
R 224	0103842	CHIP RESISTOR 820OHM+-5% 0.1W
R 225	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 226	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R 227	0103839	CHIP RESISTOR 470OHM+-5% 0.1W
R 228	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R 229	0103846	CHIP RESISTOR 1.8KOHM+-5% 0.1W
R 230	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R 231	0103839	CHIP RESISTOR 470OHM+-5% 0.1W
R 232	0103841	CHIP RESISTOR 680OHM+-5% 0.1W
R 233	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 234	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 235	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 236	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 237	0103839	CHIP RESISTOR 470OHM+-5% 0.1W
R 238	0103839	CHIP RESISTOR 470OHM+-5% 0.1W
R 239	0103839	CHIP RESISTOR 470OHM+-5% 0.1W
R 241	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 242	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 243	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 244	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 245	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 246	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 248	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W
R 249	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 251	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 252	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 257	0103879	CHIP RESISTOR 1MOHM +-5% 0.1W
R 259	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 260	0103841	CHIP RESISTOR 680OHM+-5% 0.1W
R 261	0103829	CHIP RESISTOR 68OHM+-5% 0.1W
R 262	0103841	CHIP RESISTOR 680OHM+-5% 0.1W
R 263	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 265	0103839	CHIP RESISTOR 470OHM+-5% 0.1W
R 266	0103829	CHIP RESISTOR 68OHM+-5% 0.1W
R 267	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W
R 269	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R 270	0103841	CHIP RESISTOR 680OHM+-5% 0.1W
R 275	0103865	CHIP RESISTOR 68KOHM+-5% 0.1W
R 294	0103859	CHIP RESISTOR 470OHM+-5% 0.1W
R 297	0103839	CHIP RESISTOR 22KOHM+-5% 0.1W

SYMBOL-NO	P-NO	DESCRIPTION
R 401	0103819	CHIP RESISTOR 10OHM+-5% 0.1W
R 402	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 404	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R 405	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 406	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 407	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 408	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R 409	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R 410	0103865	CHIP RESISTOR 68KOHM+-5% 0.1W
R 411	0103831	CHIP RESISTOR 100OHM+-5% 0.1W
R 412	0103865	CHIP RESISTOR 68KOHM+-5% 0.1W
R 413	0103854	CHIP RESISTOR 8.2KOHM+-5% 0.1W
R 414	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 415	0103841	CHIP RESISTOR 680OHM+-5% 0.1W
R 416	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W
R 417	0103876	CHIP RESISTOR 560KOHM+-5% 0.1W
R 418	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 419	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R 420	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 421	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R 422	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 423	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 424	0103835	CHIP RESISTOR 220OHM+-5% 0.1W
R 425	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 426	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 427	0170474	FUSE RESISTOR 10 OHM+-5% 1/4W
R 428	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R 430	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R 431	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 432	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 433	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 434	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 435	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 601	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R 602	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R 603	0103856	CHIP RESISTOR 12KOHM+- 5% 0.1W
R 604	0103862	CHIP RESISTOR 39KOHM+-5% 0.1W
R 605	0103875	CHIP RESISTOR 470KOHM+-5% 0.1W
R 606	0103878	CHIP RESISTOR 820KOHM+-5% 0.1W
R 607	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R 608	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 609	0103833	CHIP RESISTOR 150OHM+-5% 0.1W
R 610	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 611	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 614	0103870	CHIP RESISTOR 180KOHM+-5% 0.1W
R 615	0103870	CHIP RESISTOR 180KOHM+-5% 0.1W
R 616	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R 617	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 618	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R 619	0103874	CHIP RESISTOR 390KOHM+-5% 0.1W
R 620	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R 621	0103878	CHIP RESISTOR 820KOHM+-5% 0.1W
R 622	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R 623	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R 624	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W

SYMBOL-NO	P-NO	DESCRIPTION
		RESISTORS
R 625	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R 626	0103829	CHIP RESISTOR 68OHM+-5% 0.1W
R 627	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R 628	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 629	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R 630	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 631	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R 632	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R 633	0103866	CHIP RESISTOR 82KOHM+-5% 0.1W
R 634	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R 635	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 636	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R 637	0103862	CHIP RESISTOR 39KOHM+-5% 0.1W
R 638	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 639	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R 640	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 641	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R 642	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R 643	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R 644	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 645	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R 646	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R 647	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 648	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 650	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 651	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 652	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R 653	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 654	0103865	CHIP RESISTOR 68KOHM+-5% 0.1W
R 655	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 656	0103831	CHIP RESISTOR 100OHM+-5% 0.1W
R 657	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 658	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 659	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 660	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R 661	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 662	0103866	CHIP RESISTOR 82KOHM+-5% 0.1W
R 664	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 665	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 666	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R 667	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 668	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R 669	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 670	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 671	0103819	CHIP RESISTOR 10OHM+-5% 0.1W
R 672	0103819	CHIP RESISTOR 10OHM+-5% 0.1W
R 673	0103819	CHIP RESISTOR 10OHM+-5% 0.1W
R 674	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R 675	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 676	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 678	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R 679	0103872	CHIP RESISTOR 270KOHM+-5% 0.1W
R 680	0103876	CHIP RESISTOR 560KOHM+-5% 0.1W
R 681	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R 682	0103864	CHIP RESISTOR 56KOHM+-5% 0.1W
R 683	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 684	0103834	CHIP RESISTOR 180OHM+-5% 0.1W
R 685	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 686	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 687	0103865	CHIP RESISTOR 68KOHM+-5% 0.1W
R 688	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 689	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R 690	0103872	CHIP RESISTOR 270KOHM+-5% 0.1W
R 691	0103862	CHIP RESISTOR 39KOHM+-5% 0.1W
R 692	0103878	CHIP RESISTOR 820KOHM+-5% 0.1W
R 693	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R 901	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 902	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 903	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R 904	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R 905	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R 906	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R 907	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 908	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 909	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 910	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 911	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 912	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 913	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 914	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 915	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R 916	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 917	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 918	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R 919	0103833	CHIP RESISTOR 150OHM+-5% 0.1W
R 920	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R 921	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R 922	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 923	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 924	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 925	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 926	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R 927	0103864	CHIP RESISTOR 56KOHM+-5% 0.1W
R 928	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 929	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R 930	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 931	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 932	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R 933	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 934	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 935	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R 936	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R 937	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R 938	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 939	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 940	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 941	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 942	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W

SYMBOL-NO	P-NO	DESCRIPTION
		RESISTORS
R 943	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 944	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 945	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 946	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 947	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 948	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 949	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 951	0103864	CHIP RESISTOR 56KOHM+-5% 0.1W
R 952	0103865	CHIP RESISTOR 68KOHM+-5% 0.1W
R 953	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 954	0103842	CHIP RESISTOR 820OHM+-5% 0.1W
R 955	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 956	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 957	0103875	CHIP RESISTOR 470KOHM+-5% 0.1W
R 960	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 961	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 967	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 968	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 977	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 978	0103819	CHIP RESISTOR 10OHM+-5% 0.1W
R 979	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 980	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R 981	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 982	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 983	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 984	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 985	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 986	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 987	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 992	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 993	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 996	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 997	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 998	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 999	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1001	0103963	CHIP RESISTOR 220KOHM+-5% 1/8W
R1002	0103921	CHIP RESISTOR 68OHM+-5%,1/8W
R1003	0103944	CHIP RESISTOR 5.6KOHM+-5% 1/8W
R1004	0103925	CHIP RESISTOR 150OHM+-5%,1/8W
R1006	0103936	CHIP RESISTOR 1.2K OHM +-5%
R1008	0103952	CHIP RESISTOR 27KOHM+-5% 1/8W
R1009	0103939	CHIP RESISTOR 2.2K OHM +-5%
R1010	0103945	CHIP RESISTOR 6.8KOHM+-5% 1/8W
R1011	0103937	CHIP RESISTOR 1.5KOHM+-5% 1/8W
R1012	0103982	CHIP RESISTOR 430OHM+-5% 1/8W
R1013	0103926	CHIP RESISTOR 180OHM+-5% 1/8W
R1014	0103960	CHIP RESISTOR 120KOHM+-5%,1/8W
R1015	0103947	CHIP RESISTOR 10KOHM+-5% 1/8W
R1016	0103984	CHIP RESISTOR 62KOHM+-5% 1/8W
R1017	0170640	METAL FILM 2.7MOHM+-1% 1/2W
R1018	0103974	CHIP RESISTOR 5.6MOHM+-10% 1/8W
R1019	0103981	CHIP RESISTOR 240OHM+-5% 1/8W
R1101	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R1102	0103838	CHIP RESISTOR 390OHM+-5% 0.1W
R1103	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1104	0103855	CHIP RESISTOR 10KOHM-5% 0.1W
R1105	0103831	CHIP RESISTOR 100OHM+-5% 0.1W
R1106	0103840	CHIP RESISTOR 560OHM+-5% 0.1W
R1107	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1108	0103841	CHIP RESISTOR 390OHM +-5% 0.1W
R1109	0103842	CHIP RESISTOR 820OHM+-5% 0.1W
R1110	0103841	CHIP RESISTOR 680OHM+-5% 0.1W
R1111	0103821	CHIP RESISTOR 15OHM+-5% 0.1W
R1112	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R1113	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R1114	0103841	CHIP RESISTOR 680OHM+-5% 0.1W
R1115	0103840	CHIP RESISTOR 560OHM +-5% 0.1W
R1116	0103839	CHIP RESISTOR 470OHM +-5% 0.1W
R1117	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R1118	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R1119	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R1120	0103832	CHIP RESISTOR 120OHM+-5% 0.1W
R1121	0103840	CHIP RESISTOR 560OHM+-5% 0.1W
R1122	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R1123	0103823	CHIP RESISTOR 22OHM+-5% 0.1W
R1124	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R1125	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R1126	0103846	CHIP RESISTOR 1.8KOHM+-5% 0.1W
R1127	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1128	0103852	CHIP RESISTOR 5.6KOHM +-5% 0.1W
R1129	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1130	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W
R1131	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R1132	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1133	0103842	CHIP RESISTOR 820OHM+-5% 0.1W
R1134	0103842	CHIP RESISTOR 820OHM+-5% 0.1W
R1137	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R1138	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R1139	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R1142	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1143	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R1144	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1145	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R1146	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1147	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1148	0103851	CHIP RESISTOR 4.7KOHM +-5% 0.1W
R1149	0103843	CHIP RESISTOR 1KOHM +-5% 0.1W
R1150	0103835	CHIP RESISTOR 220OHM+-5% 0.1W
R1153	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1154	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1155	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1156	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R1157	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R1158	0103839	CHIP RESISTOR 470OHM+-5% 0.1W
R1159	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R1160	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R1161	0103839	CHIP RESISTOR 470OHM+-5% 0.1W
R1162	0103839	CHIP RESISTOR 470OHM+-5% 0.1W

SYMBOL-NO	P-NO	DESCRIPTION
		RESISTORS
R1163	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R1164	0103840	CHIP RESISTOR 560OHM+-5% 0.1W
R1165	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R1166	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R1167	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R1168	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R1169	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R1170	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R1171	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W
R1172	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1173	0103877	CHIP RESISTOR 680KOHM+-5% 0.1W
R1174	0103877	CHIP RESISTOR 680KOHM+-5% 0.1W
R1175	0103877	CHIP RESISTOR 680KOHM+-5% 0.1W
R1176	0103877	CHIP RESISTOR 680KOHM+-5% 0.1W
R1177	0103865	CHIP RESISTOR 68KOHM+-5% 0.1W
R1178	0103865	CHIP RESISTOR 68KOHM+-5% 0.1W
R1179	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R1181	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R1182	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R1183	0103850	CHIP RESISTOR 3.9KOHM+-5% 0.1W
R1184	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R1185	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R1186	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R1187	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R1191	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R1192	0103854	CHIP RESISTOR 8.2KOHM+-5% 0.1W
R1194	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1196	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R1198	0103846	CHIP RESISTOR 1.8KOHM+-5% 0.1W
R1201	0103827	CHIP RESISTOR 47OHM+-5% 0.1W
R1202	0103823	CHIP RESISTOR 22OHM+-5% 0.1W
R1203	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1204	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R1205	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1206	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1209	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1212	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1217	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R1224	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R1225	0103839	CHIP RESISTOR 470OHM+-5% 0.1W
R1226	0103839	CHIP RESISTOR 470OHM+-5% 0.1W
R1228	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1229	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R1230	0103854	CHIP RESISTOR 8.2KOHM+-5% 0.1W
R1232	0103840	CHIP RESISTOR 560OHM+-5% 0.1W
R1234	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1237	0103868	CHIP RESISTOR 120KOHM+-5% 0.1W
R1238	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R1239	0103831	CHIP RESISTOR 100OHM+-5% 0.1W
R1241	0103831	CHIP RESISTOR 100OHM+-5% 0.1W
R1242	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R1244	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1246	0103840	CHIP RESISTOR 560OHM+-5% 0.1W
R1249	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1250	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1251	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1252	0103877	CHIP RESISTOR 680KOHM+-5% 0.1W
R1255	0103835	CHIP RESISTOR 220OHM+-5% 0.1W
R1256	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R1257	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1258	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R1259	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1260	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R1261	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1262	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R1263	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R1266	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R1267	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R1268	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R1269	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R1270	0103819	CHIP RESISTOR 10OHM+-5% 0.1W
R1273	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W
R1274	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R1276	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R1277	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1279	0103841	CHIP RESISTOR 680OHM+-5% 0.1W
R1281	0103864	CHIP RESISTOR 56KOHM+-5% 0.1W
R1282	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R1283	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1284	0103839	CHIP RESISTOR 470OHM+-5% 0.1W
R1285	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R1286	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R1287	0103870	CHIP RESISTOR 180KOHM+-5% 0.1W
R1288	0103864	CHIP RESISTOR 56KOHM+-5% 0.1W
R1291	0103840	CHIP RESISTOR 560OHM+-5% 0.1W
R1292	0103827	CHIP RESISTOR 47OHM+-5% 0.1W
R1293	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R1294	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R1295	0103838	CHIP RESISTOR 390OHM+-5% 0.1W
R1296	0103834	CHIP RESISTOR 180OHM+-5% 0.1W
R1298	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R1311	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R1312	0103862	CHIP RESISTOR 39KOHM+-5% 0.1W
R1313	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R1316	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R1317	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R1318	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1319	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R1320	0103835	CHIP RESISTOR 220OHM+-5% 0.1W
R1321	0103832	CHIP RESISTOR 120OHM+-5% 0.1W
R1322	0103872	CHIP RESISTOR 270KOHM+-5% 0.1W
R1323	0103825	CHIP RESISTOR 33OHM+-5% 0.1W
R1324	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R1325	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R1326	0103836	CHIP RESISTOR 270OHM+-5% 0.1W
R1327	0103834	CHIP RESISTOR 180OHM+-5% 0.1W
R1328	0103837	CHIP RESISTOR 330OHM+-5% 0.1W

SYMBOL-NO	P-NO	DESCRIPTION
		RESISTORS
R1330	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R1331	0103875	CHIP RESISTOR 470KOHM+-5% 0.1W
R1332	0103838	CHIP RESISTOR 390OHM+-5% 0.1W
R1333	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1334	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R1335	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1336	0103825	CHIP RESISTOR 33OHM+-5% 0.1W
R1337	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R1338	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R1339	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R1340	0103870	CHIP RESISTOR 180KOHM+-5% 0.1W
R1341	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R1342	0103864	CHIP RESISTOR 56KOHM+-5% 0.1W
R1343	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W
R1344	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R1345	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R1346	0103839	CHIP RESISTOR 470OHM+-5% 0.1W
R1347	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R1348	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R1349	0103870	CHIP RESISTOR 180KOHM+-5% 0.1W
R1350	0103872	CHIP RESISTOR 270KOHM+-5% 0.1W
R1351	0103862	CHIP RESISTOR 39KOHM+-5% 0.1W
R1352	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R1354	0103971	CHIP RESISTOR 1MOHM+-5% 1/8W
R1356	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R1357	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R1358	0103971	CHIP RESISTOR 1MOHM+-5% 1/8W
R1359	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R1360	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R1361	0103839	CHIP RESISTOR 470OHM+-5% 0.1W
R1362	0103854	CHIP RESISTOR 8.2KOHM+-5% 0.1W
R1363	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1364	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1365	0103838	CHIP RESISTOR 390OHM+-5% 0.1W
R1370	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1374	0103862	CHIP RESISTOR 39KOHM+-5% 0.1W
R1381	0103854	CHIP RESISTOR 8.2KOHM +-5% 0.1W
R1382	0103854	CHIP RESISTOR 8.2KOHM +-5% 0.1W
R1501	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1502	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1503	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1504	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1506	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R1507	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R1509	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R1512	0103837	CHIP RESISTOR 330OHM+-5% 0.1W
R1514	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R1515	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1516	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R1517	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R1519	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1520	0103827	CHIP RESISTOR 47OHM+-5% 0.1W
R1521	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R1522	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1523	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R1525	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1527	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R1528	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1529	0103862	CHIP RESISTOR 39KOHM+-5% 0.1W
R1530	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1531	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R1533	0103866	CHIP RESISTOR 82KOHM+-5% 0.1W
R1534	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R1535	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R1536	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R1537	0103854	CHIP RESISTOR 8.2KOHM+-5% 0.1W
R1538	0103854	CHIP RESISTOR 8.2KOHM+-5% 0.1W
R1539	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R1540	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R1541	0103854	CHIP RESISTOR 8.2KOHM+-5% 0.1W
R1542	0103854	CHIP RESISTOR 8.2KOHM+-5% 0.1W
R1543	0103854	CHIP RESISTOR 8.2KOHM+-5% 0.1W
R1544	0103823	CHIP RESISTOR 22OHM+-5% 0.1W
R1545	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R1546	0103853	CHIP RESISTOR 6.8KOHM+–5% 0.1W
R1548	0103830	CHIP RESISTOR 82OHM+-5% 0.1W
R1549	0170474	FUSE RESISTOR 10OHM+–5% 1/4W
R1550	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R1551	0103863	CHIP RESISTOR 47KOHM+–5% 0.1W
R1552	0103848	CHIP RESISTOR 2.7KOHM+–5% 0.1W
R1553	0103831	CHIP RESISTOR 100OHM+–5% 0.1W
R1806	0103838	CHIP RESISTOR 390OHM+-5% 0.1W
R1808	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R1811	0103866	CHIP RESISTOR 82KOHM+-5% 0.1W
R1812	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R1813	0103831	CHIP RESISTOR 100OHM+-5% 0.1W
R1815	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R1816	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R1817	0103841	CHIP RESISTOR 680OHM+-5% 0.1W
R1818	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R1819	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R1820	0103881	CHIP RESISTOR 2.2MOHM+-5% 0.1W
R1821	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R1822	0103827	CHIP RESISTOR 47OHM+-5% 0.1W
R1826	0103840	CHIP RESISTOR 560OHM+-5% 0.1W
R1827	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W
R1835	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R1836	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R1837	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R1838	0103820	CHIP RESISTOR 12OHM+-5% 0.1W
R1839	0103880	CHIP RESISTOR 1.5MOHM+-5% 0.1W
R1840	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R1841	0103864	CHIP RESISTOR 56KOHM+-5% 0.1W
R1845	0103827	CHIP RESISTOR 47OHM+-5% 0.1W
R1847	0103836	CHIP RESISTOR 270OHM+-5% 0.1W
R1848	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
RT 201	5007433	SEMI VARIABLE 2.2KOHM
RT 202	5007431	SEMI VARIABLE 470OHM

SYMBOL-NO	P-NO	DESCRIPTION
		RESISTORS
RT 401	5007436	SEMI VARIABLE 22KOHM
RT 402	5007438	SEMI VARIABLE 100KOHM
RT 601	5007453	SEMI VARIABLE 470KOHM
RT 602	5007452	SEMI VARIABLE 220KOHM
RT 603	5007452	SEMI VARIABLE 220KOHM
RT 604	5007451	SEMI VARIABLE 100KOHM
RT 605	5007451	SEMI VARIABLE 100KOHM
RT 901	5007447	SEMI VARIABLE 10KOHM
RT 951	5007532	SEMI VARIABLE 10KOHM
RT1101	5007443	SEMI VARIABLE 470OHM
RT1102	5007447	SEMI VARIABLE 10KOHM
RT1103	5007446	SEMI VARIABLE RESISTOR 4.7KOHM
RT1104	5007445	SEMI VARIABLE 2.2KOHM
RT1105	5007445	SEMI VARIABLE 2.2KOHM
RT1107	5007437	SEMI VARIABLE 47KOHM
RT1108	5007437	SEMI VARIABLE 47KOHM
RT1109	5007437	SEMI VARIABLE 47KOHM
RT1110	5007437	SEMI VARIABLE 47KOHM
RT1111	5007437	SEMI VARIABLE 47KOHM
RT1112	5007437	SEMI VARIABLE 47KOHM
RT1113	5007434	SEMI VARIABLE 4.7KOHM
RT1114	5007434	SEMI VARIABLE 4.7KOHM
RT1115	5007445	SEMI VARIABLE 2.2KOHM
RT1116	5007445	SEMI VARIABLE 2.2KOHM
RT1117	5007445	SEMI VARIABLE 2.2KOHM
RT1120	5007433	SEMI VARIABLE 2.2KOHM
RT1121	5007434	SEMI VARIABLE 4.7KOHM
RT1122	5007434	SEMI VARIABLE 4.7KOHM
RT1123	5007447	SEMI VARIABLE 10KOHM
RT1317	5007455	SEMI VARIABLE RESISTOR 100OHM
RT1318	5007715	SEMI VARIABLE 10KOHM
RT1319	5007712	SEMI VARIABLE 1KOHM
RT1320	5007795	SEMI VARIABLE 150KOHM
RT1321	5007461	SEMI VARIABLE 4.7KOHM
RT1322	5007464	SEMI VARIABLE 47KOHM;
RT1323	5007793	SEMI VARIABLE 2.2MOHM
RT1324	5007747	SEMI VARIABLE 470K OHM
RT1325	5007459	SEMI VARIABLE 2.2KOHM
RT1501	5007436	SEMI VARIABLE 22KOHM
RT1502	5007436	SEMI VARIABLE 22KOHM
RT1503	5007436	SEMI VARIABLE 22KOHM
RT1504	5007436	SEMI VARIABLE 22KOHM
RT1505	5007436	SEMI VARIABLE 22KOHM
RT1506	5007436	SEMI VARIABLE 22KOHM
RT1507	5007436	SEMI VARIABLE 22KOHM
RT1508	5007436	SEMI VARIABLE 22KOHM
RT1509	5007436	SEMI VARIABLE 22KOHM
RT1510	5007436	SEMI VARIABLE 22KOHM
RT1511	5007436	SEMI VARIABLE 22KOHM
RT1512	5007436	SEMI VARIABLE 22KOHM
RT1513	5007436	SEMI VARIABLE 22KOHM
RT1514	5007436	SEMI VARIABLE 22KOHM
RT1515	5007436	SEMI VARIABLE 22KOHM
RT1516	5007436	SEMI VARIABLE 22KOHM
RT1601	5005586	VARIABLE 20KOHM
RT1801	5007715	SEMI VARIABLE 10KOHM
RT1802	5007711	SEMI VARIABLE 470OHM
RT1803	5007468	VARIABLE 1MOHM
RT1804	5007712	SEMI VARIABLE 1KOHM
RT1805	5007468	VARIABLE 1MOHM
RV 101	5005584	VARIABLE RESISTOR 500KOHM
		SEMI-CONDUCTORS
D 050	5328321	DIODE MA151K (MH)
D 051	5328321	DIODE MA151K (MH)
D 080	5381931	DIODE 1HD101
D 081	5381931	DIODE 1HD101
D 082	5381931	DIODE 1HD101
D 083	5381931	DIODE 1HD101
D 084	5381931	DIODE 1HD101
D 125	5380931	DIODE GL450
D 201	5331592	DIODE 1SS133
D 202	5328321	DIODE MA151K (MH)
D 203	5328321	DIODE MA151K (MH)
D 204	5332181	DIODE 1SS106
D 205	5332181	DIODE 1SS106
D 206	5332181	DIODE 1SS106
D 207	5328321	DIODE MA151K (MH)
D 208	5328303	DIODE MA152WK (MU)
D 209	5330133	DIODE 1S2076
D 211	5330133	DIODE 1S2076
D 212	5331051	DIODE 1K60
D 401	5328302	DIODE MA151WA (MN)
D 402	5328381	DIODE MA153 (MC)
D 601	5328303	DIODE MA152WK (MU)
D 602	5328303	DIODE MA152WK (MU)
D 603	5328304	DIODE MA152WA (MO)
D 604	5328321	DIODE MA151K (MH)
D 605	5328381	DIODE MA153 (MC)
D 607	5328303	DIODE MA152WK (MU)
D 608	5328304	DIODE MA152WA (MO)
D 609	5328303	DIODE MA152WK (MU)
D 610	5328381	DIODE MA153 (MC)
D 612	5328304	DIODE MA152WA (MO)
D 613	5328303	DIODE MA152WK (MU)
D 615	5328321	DIODE MA151K (MH)
D 616	5328321	DIODE MA151K (MH)
D 617	5331671	DIODE DS135D
D 618	5331671	DIODE DS135D
D 619	5328381	DIODE MA153 (MC)
D 620	5328321	DIODE MA151K (MH)
D 621	5328321	DIODE MA151K (MH)
D 622	5328381	DIODE MA153 (MC)
D 630	5331671	DIODE DS135D
D 631	5331671	DIODE DS135D
D 902	5328321	DIODE MA151K (MH)
D 905	5328303	DIODE MA152WK (MU)
D 906	5328321	DIODE MA151K (MH)

SYMBOL-NO	P-NO	DESCRIPTION
		RESISTORS
D 907	5328303	DIODE MA152WK (MU)
D 909	5328303	DIODE MA152WK (MU)
D 910	5328303	DIODE MA152WK (MU)
D 912	5328303	DIODE MA152WK (MU)
D 951	5332541	DIODE ERA 81-004
D 952	5332541	DIODE ERA 81-004
D 953	5328304	DIODE MA152WA (MO)
D 954	5328321	DIODE MA151K (MH)
D 970	5331671	DIODE DS135D
D1001	5332401	DIODE MA165
D1101	5328321	DIODE MA151K (MH)
D1102	5328321	DIODE MA151K (MH)
D1105	5328321	DIODE MA151K (MH)
D1110	5328302	DIODE MA151WA (MN)
D1301	5328321	DIODE MA151K (MH)
D1302	5328303	DIODE MA152WK (MU)
D1303	5328303	DIODE MA152WK (MU)
D1501	5328303	DIODE MA152WK (MU)
D1502	5328303	DIODE MA152WK (MU)
D1503	5328303	DIODE MA152WK (MU)
D1506	5328303	DIODE MA152WK (MU)
D1601	5381941	LED GL1PR101
D1602	5381941	LED GL1PR101
D1603	5381941	LED GL1PR101
D1801	5331001	DIODE 1SS81
D1802	5328321	DIODE MA151K (MH)
D1803	5381943	LED GL1PR101
IC 050	5311551	IC S8056H
IC 201	5374381	IC HT4440
IC 202	5374492	IC HT6502A
IC 203	5375321	IC HT4517
IC 204	5375332	IC HT4519A
IC 401	5363321	IC BA5112LS
IC 402	5364201	IC UPC1513HA
IC 601	5355892	IC HA11747 BNT
IC 602	5366631	IC BA6303F
IC 603	5366631	IC BA6303F
IC 604	5369911	IC M54548L
IC 605	5366371	IC HA13434
IC 606	5366601	IC BA6305
IC 607	5363182	IC UPC358G
IC 608	5368231	IC UPD4013BG
IC 609	5369391	IC MSL9378RS
IC 610	5366561	IC TK19080L
IC 901	5361752	IC HD614042FB93
IC 902	5366781	IC UPC339G2
IC 903	5369171	IC M54543L
IC 904	5366591	IC BA6125
IC 905	5364601	IC M5278L-05
IC 906	5377821	IC HT4422
IC 907	5366611	IC TA78L009P
IC 960	5374561	IC HT4442
IC1101	5370341	IC HT5439

SYMBOL-NO	P-NO	DESCRIPTION
IC1102	5374742	IC HT5425A
IC1103	5352771	IC NJM2904D
IC1104	5370214	IC HT5458C
IC1105	5374752	IC HT5426A
IC1106	5375362	IC HT5429A
IC1303	5364721	IC NJM3415D
IC1304	5364721	IC NJM3415D
IC1305	5350601	IC NJM4558D
IC1502	5370331	IC HT5267
IC1503	5377791	IC HT5198
IC1506	5366501	IC AN6541
IC1507	5370221	IC HT5263
IC1604	5366181	IC AN78M08R
IC1801	5364742	IC BA7125L
Q 051	5328335	TRANSISTOR 2SB709A-RS
Q 052	5328335	TRANSISTOR 2SB709A-RS
Q 053	5328335	TRANSISTOR 2SB709A-RS
Q 054	5328791	TRANSISTOR DTC124K-25
Q 055	5328791	TRANSISTOR DTC124K-25
Q 056	5328791	TRANSISTOR DTC124K-25
Q 057	5328791	TRANSISTOR DTC124K-25
Q 101	5328971	TRANSISTOR 2SC2412KBRST
Q 119	5381041	PHOTO TRANSISTOR N1L5141E
Q 123	5380131	PHOTO TRANSISTOR PH101
Q 124	5380131	PHOTO TRANSISTOR PH101
Q 201	5328335	TRANSISTOR 2SB709A-RS
Q 203	5328971	TRANSISTOR 2SC2412KBRST
Q 204	5328971	TRANSISTOR 2SC2412KBRST
Q 207	5328971	TRANSISTOR 2SC2412KBRST
Q 208	5328335	TRANSISTOR 2SB709A-RS
Q 209	5328971	TRANSISTOR 2SC2412KBRST
Q 212	5328793	TRANSISTOR DTC 144K-26
Q 213	5328335	TRANSISTOR 2SB709A-RS
Q 214	5328793	TRANSISTOR DTC 144K-26
Q 215	5328335	TRANSISTOR 2SB709A-RS
Q 216	5328793	TRANSISTOR DTC 144K-26
Q 217	5328792	MICRO PACKAGE TRANSISTOR DTA124K(15)
Q 218	5328335	TRANSISTOR 2SB790A-RS
Q 219	5328335	TRANSISTOR 2SB709A-RS
Q 220	5328792	TRANSISTOR DTA124K (15)
Q 401	5328793	TRANSISTOR DTC 144K-26
Q 402	5328971	TRANSISTOR 2SC2412KBRST
Q 404	5328351	TRANSISTOR 2SD602R(WR)
Q 405	5328792	MICRO PACKAGE TRANSISTOR DTA124K(15)
Q 406	5328793	TRANSISTOR DTC 144K-26
Q 601	5328793	TRANSISTOR DTC 144K-26
Q 602	5328793	TRANSISTOR DTC 144K-26
Q 603	5328793	TRANSISTOR DTC 144K-26
Q 604	5328793	TRANSISTOR DTC 144K-26
Q 606	5328793	TRANSISTOR DTC 144K-26
Q 901	5328971	TRANSISTOR 2SC2412KBRST
Q 902	5328971	TRANSISTOR 2SC2412KBRST
Q 903	5328971	TRANSISTOR 2SC2412KBRST
Q 904	5328335	TRANSISTOR 2SB709A-RS
Q 905	5328335	TRANSISTOR 2SB709A-RS

SYMBOL-NO	P-NO	DESCRIPTION
		SEMI-CONDUCTORS
Q 906	5328971	TRANSISTOR 2SC2412KBRST
Q 907	5328971	TRANSISTOR 2SC2412KBRST
Q 908	5328335	TRANSISTOR 2SB709A-RS
Q 909	5328971	TRANSISTOR 2SC2412KBRST
Q 910	5328971	TRANSISTOR 2SC2412KBRST
Q 911	5328793	TRANSISTOR DTC 144K-26
Q 951	5324081	TRANSISTOR 2SB962
Q 952	5324081	TRANSISTOR 2SB962
Q 953	5328793	TRANSISTOR DTC 144K-26
Q 954	5328793	TRANSISTOR DTC 144K-26
Q1001	5328341	TRANSISTOR 2SD601Y(RS)
Q1002	5328751	TRANSISTOR 2SA1022C
Q1004	5328741	TRANSISTOR 2SC2404C
Q1005	5328751	TRANSISTOR 2SA1022C
Q1006	5326041	TRANSISTOR 2SK316Q(1KQ)
Q1101	5328973	TRANSISTOR 2SC2412K-BST
Q1102	5328251	TRANSISTOR 2SA1122-CD MICRO PACKAGE
Q1103	5328973	TRANSISTOR 2SC2412K-BST
Q1104	5326081	TRANSISTOR 2SK374Q(2BQ)
Q1105	5328251	TRANSISTOR 2SA1122-CD MICRO PACKAGE
Q1106	5328251	TRANSISTOR 2SA1122-CD MICRO PACKAGE
Q1107	5328251	TRANSISTOR 2SA1122-CD MICRO PACKAGE
Q1108	5328251	TRANSISTOR 2SA1122-CD MICRO PACKAGE
Q1109	5328973	TRANSISTOR 2SC2412K-BST
Q1110	5328251	TRANSISTOR 2SA1122-CD MICRO PACKAGE
Q1111	5328251	TRANSISTOR 2SA1122-CD MICRO PACKAGE
Q1112	5326081	TRANSISTOR 2SK374Q(2BQ)
Q1113	5328973	TRANSISTOR 2SC2412K-BST
Q1114	5328251	TRANSISTOR 2SA1122-CD MICRO PACKAGE
Q1116	5328973	TRANSISTOR 2SC2412K-BST
Q1117	5328973	TRANSISTOR 2SC2412K-BST
Q1121	5328973	TRANSISTOR 2SC2412K-BST
Q1122	5328973	TRANSISTOR 2SC2412K-BST
Q1123	5328251	TRANSISTOR 2SA1122-CD MICRO PACKAGE
Q1133	5328201	TRANSISTOR 2SC2618C(RC)
Q1134	5328251	TRANSISTOR 2SA1122-CD MICRO PACKAGE
Q1135	5328251	TRANSISTOR 2SA1122-CD MICRO PACKAGE
Q1136	5328973	TRANSISTOR 2SC2412K-BST
Q1137	5328251	TRANSISTOR 2SA1122-CD MICRO PACKAGE
Q1138	5328251	TRANSISTOR 2SA1122-CD MICRO PACKAGE
Q1143	5328973	TRANSISTOR 2SC2412K-BST
Q1144	5328973	TRANSISTOR 2SC2412K-BST
Q1145	5328973	TRANSISTOR 2SC2412K-BST
Q1294	5328973	TRANSISTOR 2SC2412K-BST
Q1295	5328973	TRANSISTOR 2SC2412K-BST
Q1296	5328973	TRANSISTOR 2SC2412K-BST
Q1301	5328351	TRANSISTOR 2SD602R(WR)
Q1302	5323931	TRANSISTOR 2SD1083L
Q1303	5328241	TRANSISTOR 2SC2463E (DE)
Q1304	5328701	TRANSISTOR 2SD814S (PS)
Q1305	5328692	TRANSISTOR 2SB792T(IT)
Q1306	5328692	TRANSISTOR 2SB792T(IT)
Q1307	5328343	TRANSISTOR 2SD601R(YR)
Q1308	5328351	TRANSISTOR 2SD602R(WR)
Q1309	5323931	TRANSISTOR 2SD1083L
Q1310	5322681	TRANSISTOR 2SB793R
Q1311	5328343	TRANSISTOR 2SD601R(YR)
Q1312	5328241	TRANSISTOR 2SC2463E (DE)
Q1313	5328691	TRANSISTOR 2SB792S (IS)
Q1314	5328343	TRANSISTOR 2SD601R(YR)
Q1315	5328691	TRANSISTOR 2SB792S (IS)
Q1316	5328691	TRANSISTOR 2SB792S (IS)
Q1317	5328861	TRANSISTOR 2SB710R(CR)
Q1318	5323332	TRANSISTOR 2SD882-Q
Q1319	5328701	TRANSISTOR 2SD814S (PS)
Q1321	5328343	TRANSISTOR 2SD601R(YR)
Q1501	5321292	TRANSISTOR 2SC1740S
Q1502	5321204	TRANSISTOR SILICON 2SB562BC 1MHZ 90 OMW
Q1503	5320593	TRANSISTOR 2SA673C
Q1504	5328791	TRANSISTOR DTC124K-25
Q1505	5328791	TRANSISTOR DTC124K-25
Q1506	5328792	MICRO PACKAGE TRANSISTOR DTA124K(15)
Q1507	5328791	TRANSISTOR DTC124K-25
Q1510	5328741	TRANSISTOR 2SC2404C
Q1511	5328791	TRANSISTOR DTC124K-25
Q1512	5328741	TRANSISTOR 2SC2404C
Q1514	5328272	TRANSISTOR 2SK160(5) (K5)
Q1515	5328791	TRANSISTOR DTC124K-25
Q1516	5328792	MICRO PACKAGE TRANSISTOR DTC124K(15)
Q1520	5329192	TRANSISTOR 2SC2462D(CD)
Q1601	5323561	TRANSISTOR DTC124F
Q1801	5328211	TRANSISTOR 2SA1121 (SC)
Q1802	5328241	TRANSISTOR 2SA1121C (DE)
Q1803	5323831	TRANSISTOR 2SD974
TH1101	5340282	THERMISTER 112102-2
ZD 901	5330325	DIODE HZ9A2
ZD 902	5331019	DIODE HZ-3B3
ZD 903	5330328	DIODE HZ-9C3
ZD1501	5330714	DIODE HZ4B
		TRANSFORMERS
T 401	5262511	BIAS OSC.COIL
T1301	5271522	FBT
T1801	5271811	FBT
		COILS
L 201	5152601	CHOKE COIL 33UH +-10%
L 202	5152337	CHOKE COIL 100UH
L 203	5152337	CHOKE COIL 100UH
L 204	5152612	CHOKE COIL 220MICRO H
L 205	5152337	CHOKE COIL 100UH
L 208	5152604	CHOKE COIL 56UH +-10%
L 209	5152598	CHOKE COIL 22UH+–10%
L 211	5152583	CHOKE COIL 1.5UF+-10%
L 212	5152597	CHOKE COIL 18UH +-10%
L 213	5152596	CHOKE COIL 15UH
L 214	5152341	CHOKE COIL 180UH

SYMBOL-NO	P-NO	DESCRIPTION
		COILS
L 215	5152602	CHOKE COIL 39UH
L 216	5152337	CHOKE COIL 100UH
L 225	5152594	CHOKE COIL 10UH
L 226	5152599	CHOKE COIL 27MICRO H
L 401	5152815	CHOKE COIL 22MH
L 402	5152971	CHOKE COIL 5.6MH+-5%
L 403	5152346	CHOKE COIL 470UH
L 601	5152603	CHOKE COIL 47UF
L 951	5152751	CHOKE COIL 120UH
L 952	5152752	CHOKE COIL 50UH
L 953	5152752	CHOKE COIL 50UH
L 954	5152943	CHOKE COIL 390UH
L 960	5152607	CHOKE COIL 100MICRO H
L1001	5152593	CHOKE COIL 8.2UH
L1002	5152982	CHOKE COIL 340UH
L1101	5152614	CHOKE COIL 330UH
L1102	5152607	CHOKE COIL 100MICRO H
L1103	5152607	CHOKE COIL 100MICRO H
L1104	5152611	CHOKE COIL 180UH
L1105	5152607	CHOKE COIL 100MICRO H
L1106	5152595	CHOKE COIL 12UH
L1107	5152595	CHOKE COIL 12UH
L1108	5152607	CHOKE COIL 100MICRO H
L1109	5152607	CHOKE COIL 100MICRO H
L1110	5152613	CHOKE COIL 270UH
L1112	5152604	CHOKE COIL 56UH+-10%
L1113	5152608	CHOKE COIL 120UH+-10%
L1114	5152602	CHOKE COIL 39UH
L1115	5152613	CHOKE COIL 270UH
L1116	5152607	CHOKE COIL 100MICRO H
L1117	5152612	CHOKE COIL 220MICRO H
L1301	5152813	CHOKE COIL 10MH
L1302	5270002	COIL 33MH
L1303	5152337	CHOKE COIL 100UH
L1501	5152589	CHOKE COIL 4.7UH
L1801	5152589	CHOKE COIL 4.7UH
L1802	5152612	CHOKE COIL 220MICRO H
L1804	5270574	COIL
L1805	5152603	CHOKE COIL 47UF
		MISCELLANEOUS
CP 204	5162475	BAND PASS FILTER
CP 205	5162592	HIGH PASS FILTER
CP1101	5162841	TRAP COIL
CP1102	5162584	LOW PASS FILTER
CP1103	5162851	DELAY LINE
CP1105	5162843	BAND PASS FILTER
CX 901	5781021	CERAMIC OSC
DL 201	5785411	DELAY LINE
DL 202	5785811	DELAY LINE
DL1101	5162861	LOW PASS FILTER
DL1102	5162546	DELAY LINE
DL1104	5162842	LOW PASS FILTER

SYMBOL-NO	P-NO	DESCRIPTION
F 970	5720177	FUSE 2A
H 970	5722211	FUSE HOLDER
H 971	5722211	FUSE HOLDER
J 101	5673791	JACK
J 401	5673781	JACK
J 970	5674341	JACK
RL 901	5641861	RELAY
S 050	5622811	SLIDE SWITCH
S 051	5633911	SWITCH
S 052	5633911	SWITCH
S 053	5633911	SWITCH
S 054	5633911	SWITCH
S 055	5633911	SWITCH
S 056	5633911	SWITCH
S 121	5635221	SWITCH
S 122	5635221	SWITCH
S1601	5622182	SWITCH
S1602	5622182	SWITCH
S1603	5633911	SWITCH
S1604	5633911	SWITCH
S1605	5635034	SWITCH
S1606	5635034	SWITCH
		FOR FINAL ASSEMBLY
101	6076481	KNOB
102	6592571	BUTTON SHEET
103	6026201	SIDE COVER (R)
104	6082674	BUTTON
105	6082693	BUTTON
106	5967821	BATTERY TERMINAL ASSEMBLY
107	6188953	COVER
108	6335686	HAND STOLAP
109	6889651	BOTTOM FRAME
110	6076541	KNOB
111	6076531	KNOB
112	6076473	SLIDE KNOB
113	6076492	KNOB
114	6026214	SIDE COVER (L)
115	6889225	LEVER
116	6082683	BUTTON
117	6887431	TOP PIECE
118	7393721	ACCESARY SHOE
119	6645432	E.V.F SHOE
120	6539093	SPRING
121	6189401	CASSETTE LID
122	7784364	SCREW
123	6890301	COVER
124	7784341	SCREW
126	7748771	KNOB SHEET
130	6889085	PLATE
202	6887704	SUPPLY REEL TABLE
203	6887714	TAKE-UP REEL TABLE
204	6888262	BRAKE
205	6544711	SPRING
206	6979911	ARM

SYMBOL-NO	P-NO	DESCRIPTION
		FOR FINAL ASSEMBLY
207	7392882	PRESSURE ROLLER ARM
208	6544724	SPRING
209	6544762	SPRING
210	6979802	BEARING
211	6888933	BRAKE
212	6544755	SPRING
213	6974642	ARM
214	6550813	SPRING
215	6888865	HOLDER
216	7392924	TENTION ARM
217	6979942	ARM
218	7393333	BAND
219	7393582	SPRING STOPPER
220	6544736	SPRING
221	6888963	HOLDER
222	5575741	CAPSTAN MOTOR
223	6344951	IMPEDANCE ROLLER
224	4503433	FLANGE
225	6522391	SPRING
226	6888342	HEAD BASE
227	5447761	FELL ERASE HEAD
228	6550781	SPRING
229	7393013	ARM
230	7392982	PLATE
231	6888531	GUIDE ROLLER
232	4504421	FLANGE
233	4504011	FLANGE
234	4504461	TAPE GUIDE
235	6522432	SPRING
236	7785621	NUT
237	7777505	FLYWHEEL HOLDER
238	6550791	SPRING
239	5447751	AUDIO CONTROL HEAD
240	6539041	SPRING
241	6522441	SPRING
242	7787031	THRUST SUPPORT
243	6750441	RETAINER
245	6979762	CATCHER O
246	5792925	BRUSH
247	6979895	GUIDE ROLLER BASE(O)
248	7392783	PLATE
249	6979835	GUIDE ROLLER BASE (I)
250	7394151	PLATE
251	4503404	GUIDE ROLLER
252	6979962	ARM
253	6888802	ARM
254	6539052	SPRING
255	6979972	STOPPER
256	6888573	GUIDE RAIL
257	7392736	LOADING LINK
258	7392773	LOADING LINK
260	6888982	LED HOLDER
261	6076501	WHEEL
262	6889271	JACK HOLDER
263	6889232	HOLDER
264	6889172	HOLDER
265	6539202	SPRING
266	7748252	BELT COVER
267	6889292	HINGE
268	6887462	HOLDER
274	6539182	SPRING
275	4503406	GUIDE ROLLER
276	4504012	FLANGE
301	7031871	GEAR BLOCK
302	6375065	FLYWHEEL
303	6358012	BELT
304	6356441	BELT
305	6356443	BELT
306	7392802	GEAR
307	7392792	GEAR
308	6889043	ARM
309	7393052	SLIDER
310	6889033	LORDING ARM
311	7393175	SLIDER
312	6888877	LORDING GEAR
313	6888753	HOLDER
314	6888793	GEAR
315	5612612	SWITCH
316	6888552	ARM
317	7393072	GEAR PLATE
318	7392761	SLIDER
319	6544783	SPRING
320	6550941	SPRING
321	6344632	DAMPER
322	5578751	LODING MOTOR
401	7393128	CASSETTE HOLDER ASSEMBLY
402	6889027	HOLDER
403	6888603	HOLDER
404	6888952	HOLDER
601	6891211	FRAME
602	7452702	SHIELD CASE
603	6956092	LENS BLOCK
607	5381693	BIAS LIGHT
608	5883812	CONNECTOR
609	5884861	CONNECTOR-EVF
612	8691308	BT SCREW-2.6MMDX8MM
614	8813113	WASHER-2.6D
701	6025615	UPPER CASE
703	6887751	UPPER NECK
704	6955931	LENS
705	6082511	BUTTON
706	6592292	CAP
707	6888678	COVER
708	6539171	SPRING
709	6890131	HOLDER
710	7393831	BRACKET
711	6592122	RUBBER
713	6536115	SPRING

SYMBOL-NO	P-NO	DESCRIPTION
		FOR FINAL ASSEMBLY
714	6693123	MIRROR
715	6888651	LEVER HOLDER
716	6887721	BUTTON LEVER
717	6082521	BUTTON
718	6025232	BOTTOM CASE
719	6889981	BOTTOM PIECE
721	6887732	SHOE PIECE
722	6889573	LOCK PIECE
723	6890003	BUTTOM PIECE
724	5311451	CRT
725	5271865	DEFELECTION YOKE
726	5855212	CABLE
727	5672442	JACK
728	5422283	MICROPHONE
730	6539241	SPRING
732	5654454	CRT SOCKET
733	6592421	HOLDER
901	8691106	DT SCREW-2MMDX6MM
902	8691308	BT SCREW-2.6MMDX8MM
903	8691305	SCREW (2.6X5)
905	8699308	BT BIND SCREW-2.6MMDX8MM(BLACK)
906	7784371	SCREW
931	8699305	SCREW (2.6X5)
932	8711108	PAN HEAD SCREW-2MMDX8MM
933	7781582	FALT SCREW-3MMDX10MM(BLACK)
934	8699308	BT BIND SCREW-2.6MMDX8MM(BLACK)
941	7787535	PS.WASHER
942	7778859	POLYSLIDER WASHER
943	8741108	BINDSREW-2MMDX8MM
944	7230901	E RING
947	8741104	BIND SCREW-2MMDX4MM
948	7778859	POLYSLIDER WASHER
949	7787615	WASHER
950	8741103	SCREW(2X3B)
951	8650104	SCREW
952	8691108	SCREW(2X8)
953	8741103	SCREW(2X3B)
954	7788901	WASHER
955	8741103	SCREW(2X3B)
956	7788901	WASHER
957	8619001	SCREW (BT1.7X3)
958	8741104	BIND SCREW-2MMDX4MM
959	8691105	SCREW
960	8741103	SCREW(2X3B)
961	7785182	NUT
963	7787615	WASHER
964	7780901	PAN HEAD SCREW-1.7MMDX4MM
967	8741104	BIND SCREW-2MMDX4MM
968	8741106	BIND SCREW-2MMDX6MM
969	8741105	SCREW
970	7780905	SCREW (1.7X6)
971	7780905	SCREW (1.7X6)
972	8691106	DT SCREW-2MMDX6MM
973	7787615	WASHER
974	8741110	BIND SCREW-2MMDX 10MM
975	8741104	BIND SCREW-2MMDX4MM
976	7230901	E RING
977	7788623	WASHER
978	7230901	E RING
979	7787616	WASHER
980	8650105	SCREW (2X5)
981	8741103	SCREW(2X3B)
982	8691106	DT SCREW-2MMDX6MM
983	8741105	SCREW
984	8741110	BIND SCREW-2MMDX 10MM
985	7789791	WASHER
989	7780902	PAN HEAD SCREW-1.7MMDX2MM
990	8741104	BIND SCREW-2MMDX4MM
992	8741106	BIND SCREW-2MMDX6MM
994	7784371	SCREW
995	8741106	BIND SCREW-2MMDX6MM
996	7782611	SCREW
997	7786117	POLYSLIDER WASHER
998	7778847	POLY SLIDER WASHER
998	7789841	POLY-SLIDER WASHER
999	8811113	WASHER 2.6MMD
		FOR ACCESSARIES
	4648901	OPERATING GUIDE